



STIC Search Report

EIC 1700

STIC Database Tracking Number: 178839

TO: Ardith Hertzog
Location: REM 9A20
Art Unit : 1754
February 8, 2006

Case Serial Number: 10/786,671

From: Kathleen Fuller
Location: EIC 1700
REMSEN 4B28
Phone: 571/272-2505
Kathleen.Fuller@uspto.gov

Search Notes

Claim 18

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: ARDITH E. HERTZOG Examiner #: 71465 Date: 2.7.06
Art Unit: 1754 Phone Number 30 2-1247 Serial Number: PCT-USA-05645
Mail Box and Bldg/Room Location: Rem 9A20 Results Format Preferred (circle) PAPER DISK E-MAIL
(Office)

If more than one search is submitted, please prioritize searches in order of need. (doesn't matter)

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Per attached BIB DATA SHEET =>
Inventors (please provide full names): 11

Earliest Priority Filing Date: 11

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number. 786C

Please search for
polyoxometalates
of the attached
cl. 18 -

SCIENTIFIC REFERENCE BR
Sci & Tech Inf - Ctr
FEB 7 2006
Pat & T.M. Office

Thank you,
Arduith

Searcher: <u>R. Fuller</u>	Type of Search	Vendors and cost where applicable
Searcher Phone #: _____	NA Sequence (#) _____	STN <u>1</u>
Searcher Location: _____	AA Sequence (#) _____	Dialog _____
Date Searcher Picked Up: _____	Structure (#) <u>1</u>	Questel/Orbit _____
Date Completed: <u>2/8/06</u>	Bibliographic _____	Dr. Link _____
Searcher Prep & Review Time: <u>30</u>	Litigation _____	Lexis/Nexis _____
Clerical Prep Time: _____	Fulltext _____	Sequence Systems _____
Online Time: <u>38</u>	Patent Family _____	WWW/Internet _____
	Other _____	Other (specify) _____



STIC Search Results Feedback Form

EIC17000

Questions about the scope or the results of the search? Contact the EIC searcher or contact:

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

- I am an examiner in Workgroup: Example: 1713
- Relevant prior art found, search results used as follows.

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

➤ Relevant prior art **not** found:

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

=> file reg

FILE 'REGISTRY' ENTERED AT 11:33:46 ON 08 FEB 2006

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STRUCTURE FILE UPDATES: 6 FEB 2006 HIGHEST RN 873652-66-5

DICTIONARY FILE UPDATES: 6 FEB 2006 HIGHEST RN 873652-66-5

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2005

Please note that search-term pricing does apply when conducting SmartSELECT searches.

*
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added, *
* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
*

Structure search iteration limits have been increased. See HELP SLIMITS for details.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

=> file hcapl

FILE 'HCAPLUS' ENTERED AT 11:33:51 ON 08 FEB 2006

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FILE COVERS 1907 - 8 Feb 2006 VOL 144 ISS 7

FILE LAST UPDATED: 7 Feb 2006 (20060207/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d que

L36 14814 SEA FILE=REGISTRY ABB=ON 10549-76-5/CRN
L43 112256 SEA FILE=REGISTRY ABB=ON (C(L)H(L)N(L) (FE OR V) (L)O)/ELS
L44 743 SEA FILE=REGISTRY ABB=ON L36 AND L43
L45 230 SEA FILE=REGISTRY ABB=ON L44 AND 20-90/O
L46 1 SEA FILE=REGISTRY ABB=ON L45 AND 3/FE AND 1/P AND 9/W AND 37/O
L47 6 SEA FILE=REGISTRY ABB=ON L45 AND 10/V AND 28/O
L48 2 SEA FILE=REGISTRY ABB=ON L45 AND 1/P AND 2/V AND 10/MO AND 40/O
L49 1 SEA FILE=REGISTRY ABB=ON L45 AND 1/P AND 3/FE AND 9/W AND 37/O
L50 1 SEA FILE=REGISTRY ABB=ON L45 AND 2/P AND 3/FE AND 18/W AND 68/O
L52 1 SEA FILE=REGISTRY ABB=ON L44 AND 4/P AND 3/FE AND 4/P AND 30/W
L53 11 SEA FILE=REGISTRY ABB=ON (L46 OR L47 OR L48 OR L49 OR L50) OR L52
L54 49 SEA FILE=HCAPLUS ABB=ON L53
L56 23 SEA FILE=HCAPLUS ABB=ON L54 AND (CAT/RL OR CATALYST?)
L58 2 SEA FILE=HCAPLUS ABB=ON L54 AND (POLLUTION? OR TOXIC?)/SC,SX
L59 23 SEA FILE=HCAPLUS ABB=ON L56 OR L58
L60 2 SEA FILE=HCAPLUS ABB=ON L54 AND CONTAMIN?
L61 23 SEA FILE=HCAPLUS ABB=ON L59 OR L60
L64 6 SEA FILE=HCAPLUS ABB=ON L54 AND (COMPNS? OR COMPOSITION?)
L65 24 SEA FILE=HCAPLUS ABB=ON L61 OR L64

claim 8

11 structures

=> d l65 bib abs hitind hitstr 1-24

24 CA references

L65 ANSWER 1 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:999712 HCAPLUS
DN 141:427184
TI **Compositions**, materials incorporating the **compositions**
, and methods of using the **compositions** and materials
IN Okun, Nelya; Hill, Craig L.
PA USA
SO U.S. Pat. Appl. Publ., 8 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

application

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004230086	A1	20041118	US 2004-786671	20040225
	WO 2005021435	A2	20050310	WO 2004-US5645	20040225
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
PRAI	US 2003-449892P	P	20030225		

US 2004-786671 A 20040225

AB **Compns.** that can protect and/or remove **contaminants** such as warfare agents from the environment in which people are operating are disclosed, as are materials incorporating the **compns.**, and methods of use thereof. In one embodiment, the **composition** includes a metal nitrate selected from d-block metal nitrates and f-block metal nitrates and a metal salt having weakly bound counter anions. The metal of the metal salt having weakly bound counter anions is selected from a d-block metal and an f-block metal. Another embodiment of the **composition** includes a first polyoxometalate having a first metal selected from a d-block metal and an f-block metal and a second polyoxometalate having a second metal selected from a d-block metal and an f-block metal, the first metal being an open coordinate site of the first polyoxometalate. In addition, the first metal has a nitrate terminal ligand.

IC ICM A62D003-00
ICS C11D001-00

INCL 588205000

CC 59-2 (Air **Pollution** and Industrial Hygiene)
Section cross-reference(s): 4

IT Biological warfare agents
Chemical warfare agents
Coating materials
Environmental pollution control
Oxidation **catalysts**
Powders
Textiles
(catalytic **compns.** for removal of **contaminants** such as warfare agents, and materials incorporating these **compns.**)

IT Aldehydes, processes
RL: ADV (Adverse effect, including toxicity); CPS (Chemical process); PEP (Physical, engineering or chemical process); POL (Pollutant); REM (Removal or disposal); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(catalytic **compns.** for removal of **contaminants** such as warfare agents, and materials incorporating these **compns.**)

IT Oxidation
(catalytic; catalytic **compns.** for removal of **contaminants** such as warfare agents, and materials incorporating these **compns.**)

IT Drug delivery systems
(topical; catalytic **compns.** for removal of **contaminants** such as warfare agents, and materials incorporating these **compns.**)

IT Heteropoly acids
RL: CAT (Catalyst use); USES (Uses)
(tungstates, complexes with iron, silver, and/or cerium; catalytic **compns.** for removal of **contaminants** such as warfare agents, and materials incorporating these **compns.**)

IT 7727-37-9D, Nitrogen, compds.
RL: ADV (Adverse effect, including toxicity); CPS (Chemical process); PEP (Physical, engineering or chemical process); POL (Pollutant); REM (Removal or disposal); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(aliphatic; catalytic **compns.** for removal of **contaminants** such as warfare agents, and materials incorporating these **compns.**)

IT 7440-33-7D, Tungsten, heteropoly compds. containing, complexes with iron
59858-44-5 134360-58-0 795308-36-0
796042-78-9
RL: CAT (Catalyst use); USES (Uses)
(as polyoxometalate; catalytic **compns.** for removal of **contaminants** such as warfare agents, and materials

incorporating these **compns.**)

IT 50-00-0, Formaldehyde, processes 57-12-5D, Cyanide, compds. 74-93-1, Methyl mercaptan, processes 75-07-0, Acetaldehyde, processes 75-18-3, Dimethyl sulfide 75-44-5, Phosgene 75-50-3, Trimethylamine, processes 79-09-4, Propionic acid, processes 100-42-5, Styrene, processes 107-92-6, Butyric acid, processes 109-52-4, Valeric acid, processes 110-81-6, Diethyl disulfide 110-86-1, Pyridine, processes 352-93-2, Diethyl sulfide 503-74-2, Iso-valeric acid 505-60-2, Mustard gas 624-92-0 630-08-0, Carbon monoxide, processes 693-07-2, 2-Chloroethyl ethyl sulfide 7440-38-2D, Arsenic, compds. 7664-41-7, Ammonia, processes 7704-34-9D, Sulfur, compds. 7783-06-4, Hydrogen sulfide, processes

RL: ADV (Adverse effect, including toxicity); CPS (Chemical process); PEP (Physical, engineering or chemical process); POL (Pollutant); REM (Removal or disposal); BIOL (Biological study); OCCU (Occurrence); PROC (Process)

(catalytic **compns.** for removal of **contaminants** such as warfare agents, and materials incorporating these **compns.**)

IT 3251-23-8, Copper (II) nitrate 7439-89-6D, Iron, complexes with heteropolytungstates 7440-22-4D, Silver, complexes with heteropolytungstates 7440-45-1D, Cerium, complexes with heteropolytungstates 10108-73-3, Cerium (III) nitrate 10141-05-6, Cobalt (II) nitrate 10421-48-4, Iron (III) nitrate 13093-17-9 13138-45-9, Nickel (II) nitrate 13770-18-8, Copper (II) perchlorate 34946-82-2, Copper (II) trifluoromethanesulfonate 38465-60-0, Copper (II) tetrafluoroborate

RL: CAT (Catalyst use); USES (Uses)

(catalytic **compns.** for removal of **contaminants** such as warfare agents, and materials incorporating these **compns.**)

IT 59858-44-5 134360-58-0 795308-36-0 796042-78-9

RL: CAT (Catalyst use); USES (Uses)

(as polyoxometalate; catalytic **compns.** for removal of **contaminants** such as warfare agents, and materials incorporating these **compns.**)

RN 59858-44-5 HCAPLUS

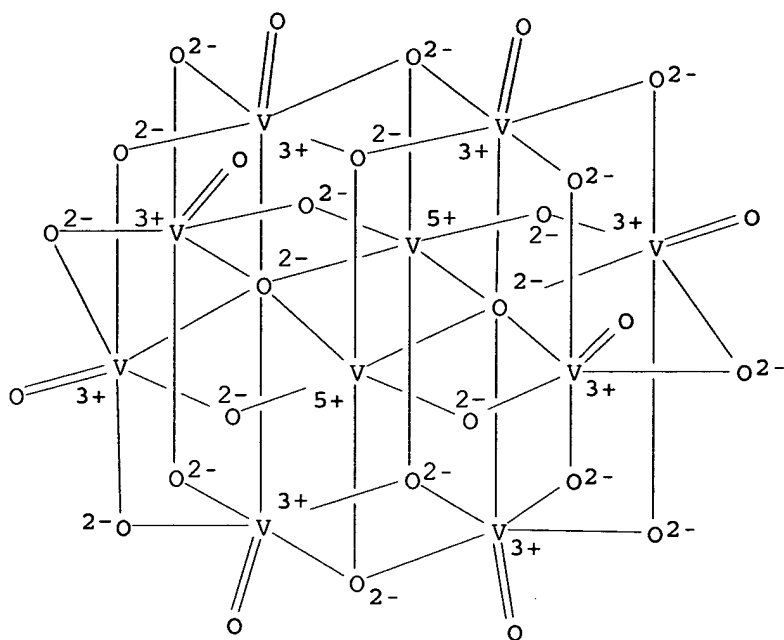
CN 1-Butanaminium, N,N,N-tributyl-, tetradeca- μ -oxo-tetra- μ 3-oxodi- μ 6-oxooctaoxodecavanadate(6-) (6:1) (9CI) (CA INDEX NAME)

CM 1

CRN 12397-12-5

CMF 028 V10

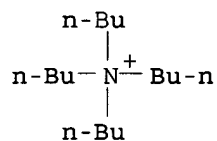
CCI CCS



CM 2

CRN 10549-76-5

CMF C16 H36 N



RN 134360-58-0 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, (heptadeca-μ-oxodecaoxodecamolybdate) hepta-μ-oxodioxo [μ12- [phosphato (3-)-κO:κO:κO:κO':κO':κO':κO'':κappa.O'':κO'':κO'':κO'':κO'']]divanadate(5-) (5:1) (9CI) (CA INDEX NAME)

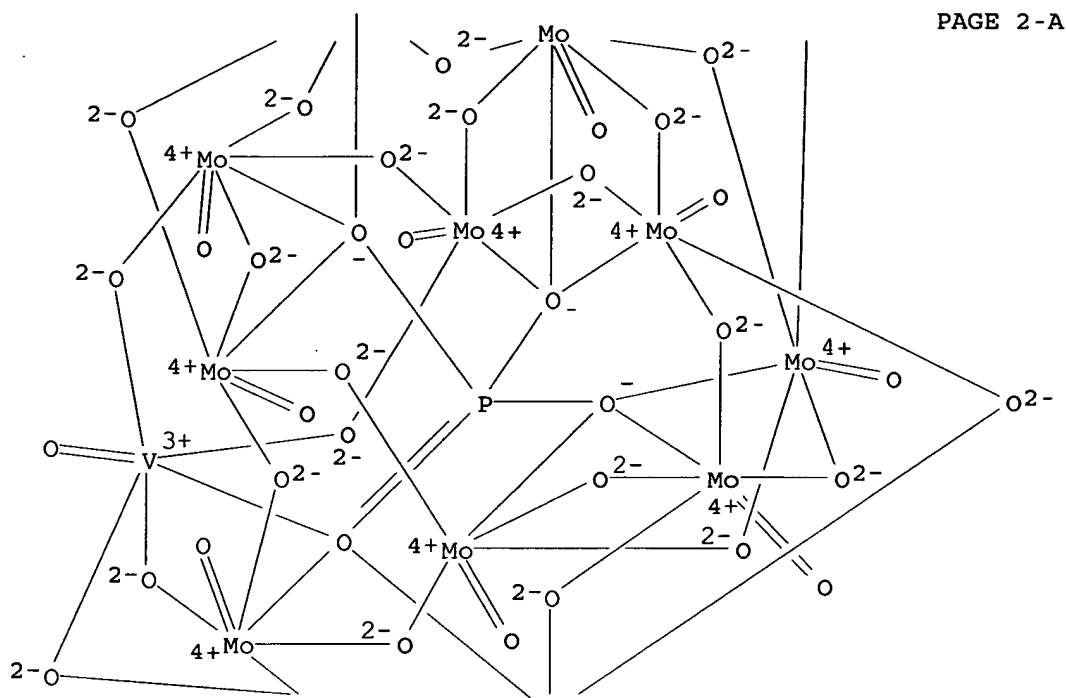
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CRN 58071-93-5

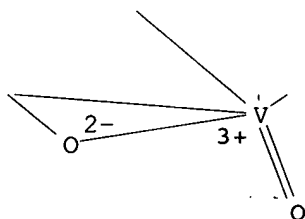
CMF Mo10 O40 P V2

CCI CCS

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *



PAGE 2-A

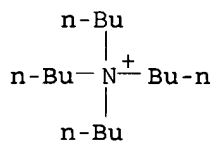


PAGE 3-A

CM 2

CRN 10549-76-5

CMF C16 H36 N



RN 795308-36-0 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, heneicosa-μ-oxononaoxo[μ12-
[phosphato(3-)-κO:κO:κO:κO':κO':κO':.k
appa.0':κO':κO':κO':κO':κO':]](tri-
μ-oxotriferrate)nonatungstate(6-) (6:1) (9CI) (CA INDEX NAME)

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CRN 741643-46-9

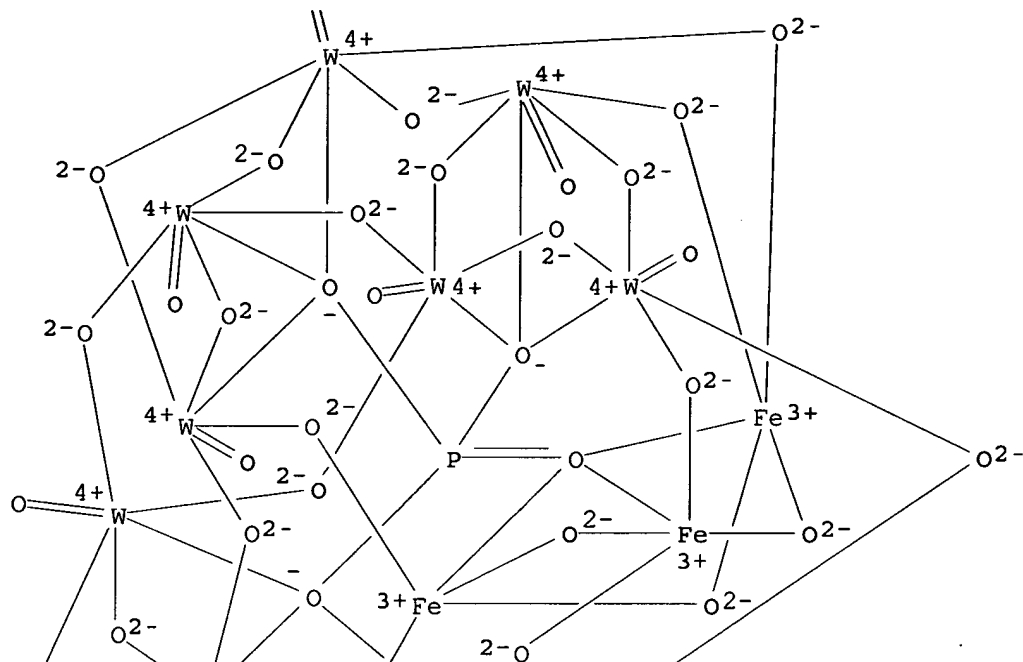
CMF Fe3 O37 P W9

CCI CCS

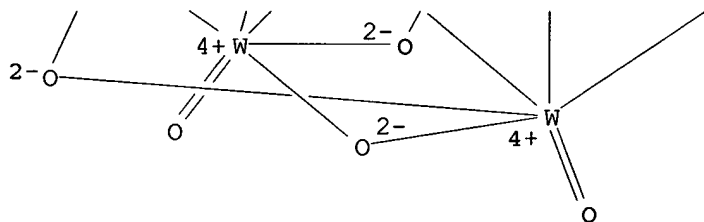
PAGE 1-A

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PAGE 2-A

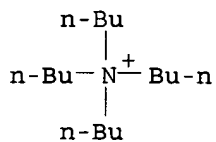


PAGE 3 -A



CM 2

CRN 10549-76-5
CMF C16 H36 N



RN 796042-78-9 HCAPLUS
CN 1-Butanaminium, N,N,N-tributyl-, triferratedotetraconta-μ-oxooctadecaobis[μ9-[phosphato(3-) -κO:κO:κO:κO':κO':κO'':κO'':κO''':κO''']]octadecatungsta

te(9-) (9:1) (9CI) (CA INDEX NAME)

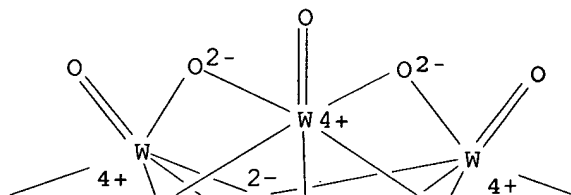
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CRN 796042-77-8

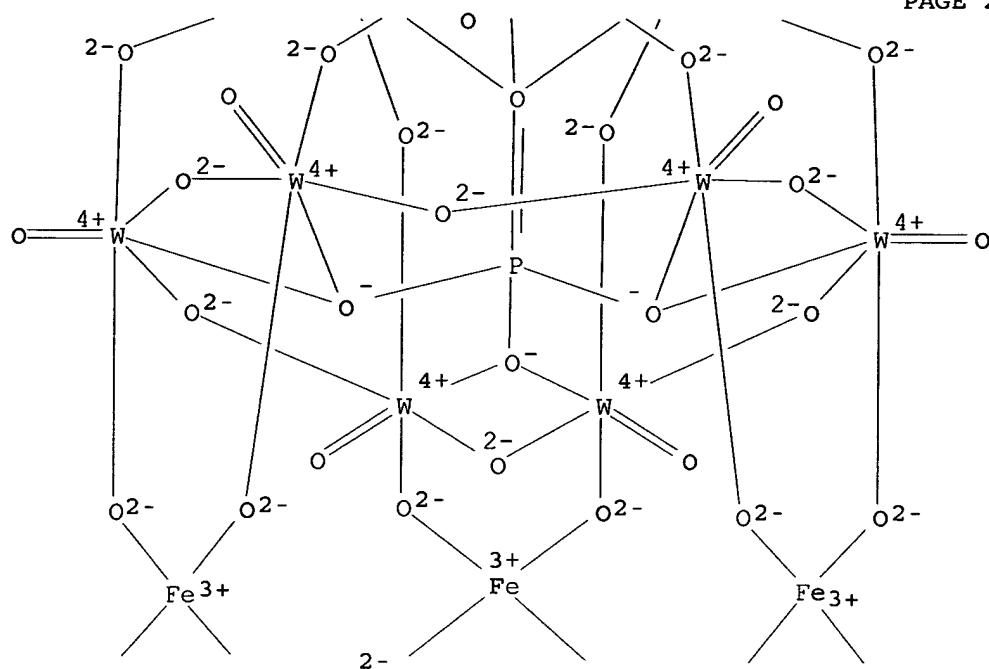
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CCI CCS

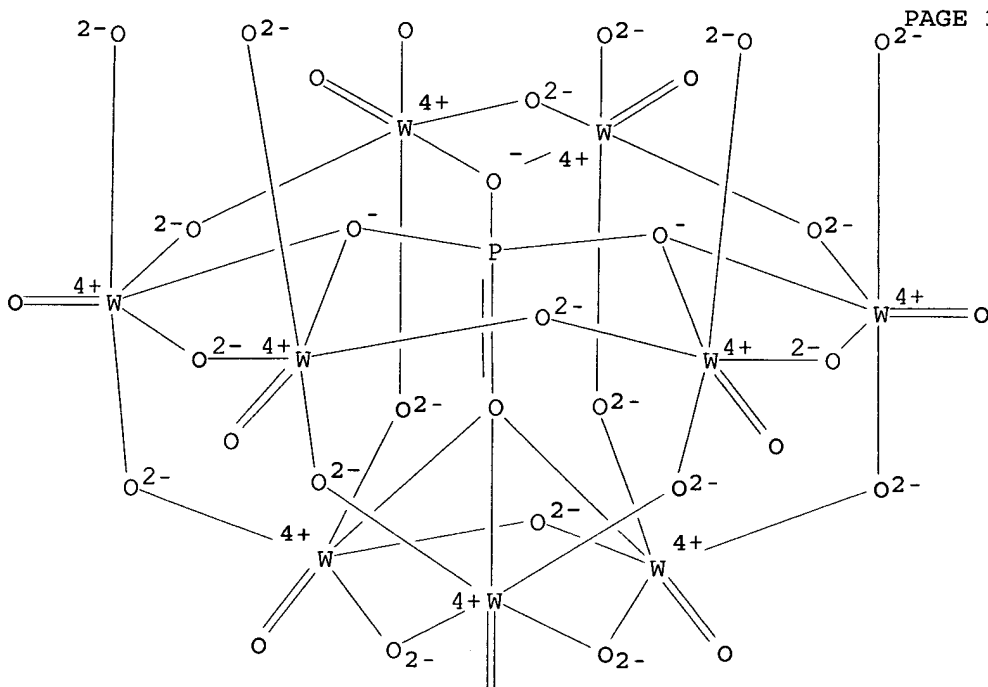
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PAGE 2-A



PAGE 3-A



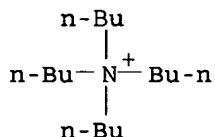
PAGE 4-A

O

CM 2

CRN 10549-76-5

CMF C16 H36 N



L65 ANSWER 2 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 2003:913046 HCAPLUS

DN 139:392437

TI Materials for degrading **contaminants**IN Okun, Nelya; Hill, Craig L.

PA Emory University, USA

SO PCT Int. Appl., 34 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003094977	A2	20031120	WO 2003-US14375	20030505
	WO 2003094977	A3	20040708		
	W:				
	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW:				
	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2005159307	A1	20050721	US 2003-512336	20030505
PRAI	US 2002-377740P	P	20020503		
	WO 2003-US14375	W	20030505		

AB Embodiments of the present invention includes **compns.**, materials including the **compns.**, methods of using the **compns.**, and methods of degrading **contaminants**. The **composition** can include a polyoxometalate/cationic silica material. In addition, the **compns.** can be made of a polyoxometalate/cationic silica material, a copper (II) salt having a weakly bound anion, and a nitrate salts. Further, the **compns.** can be made of a polyoxometalate/cationic silica material, a copper (II) salt having a weakly bound anion, a compound selected from tetraethylammonium (TEA) nitrate, tetra-n-butylammonium (TBA) nitrate, and combinations thereof.

IC ICM A61L

CC 4-3 (Toxicology)

IT Infection
(anthrax; materials for degrading **contaminants**)

IT Biological warfare agents
Chemical warfare agents
Decontamination
(materials for degrading **contaminants**)

IT Heteropoly acids
RL: NUU (Other use, unclassified); USES (Uses)
(materials for degrading **contaminants**)

IT Aldehydes, reactions
Halogen compounds
RL: RCT (Reactant); REM (Removal or disposal); PROC (Process); RACT
(Reactant or reagent)
(materials for degrading **contaminants**)

IT Nitrates, reactions
RL: NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or
reagent); USES (Uses)
(transition metal; materials for degrading **contaminants**)

IT 625455-59-6 625455-61-0 625830-47-9 625830-48-0 625830-49-1
625830-52-6
RL: NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or
reagent); USES (Uses)
(cationic **catalyst** support; materials for degrading
contaminants)

IT 173358-70-8, Bindzil CAT
RL: NUU (Other use, unclassified); USES (Uses)
(materials for degrading **contaminants**)

IT 3251-23-8, Cupric nitrate 10141-05-6, Cobalt nitrate 10421-48-4,
Ferric nitrate 12200-88-3 13138-45-9, Nickel nitrate 13770-18-8,
Cupric perchlorate 34946-82-2, Cupric triflate 38465-60-0, Cupric
tetrafluoroborate 73131-99-4 625830-46-8 625830-51-5
RL: NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or
reagent); USES (Uses)
(materials for degrading **contaminants**)

IT 59858-44-5P 134360-58-0P 194925-14-9P
RL: NUU (Other use, unclassified); RCT (Reactant); SPN (Synthetic
preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(materials for degrading **contaminants**)

IT 1941-26-0, Tetraethylammonium nitrate 1941-27-1, Tetrabutylammonium
nitrate
RL: NUU (Other use, unclassified); REM (Removal or disposal); PROC
(Process); USES (Uses)
(materials for degrading **contaminants**)

IT 625830-54-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(materials for degrading **contaminants**)

IT 50-00-0, Formaldehyde, reactions 74-93-1, Methyl mercaptan, reactions
75-07-0, Acetaldehyde, reactions 75-18-3, Dimethyl sulfide 75-44-5,
Phosgene 75-50-3, Trimethylamine, reactions 79-09-4, Propionic acid,
reactions 100-42-5, Styrene, reactions 107-44-8, Sarin 107-92-6,
n-Butyric acid, reactions 109-52-4, n-Valeric acid, reactions
110-01-0, Tetrahydrothiophene 110-81-6, Diethyl disulfide 110-86-1,
Pyridine, reactions 352-93-2, Diethyl sulfide 503-74-2, Isovaleric
acid 624-92-0, Dimethyl disulfide 630-08-0, Carbon monoxide, reactions
693-07-2, 2-Chloroethyl ethyl sulfide 7440-38-2D, Arsenic, compds.
7664-41-7, Ammonia, reactions 7704-34-9D, Sulfur, compds. 7727-37-9D,
Nitrogen, compds. 7783-06-4, Hydrogen sulfide, reactions
RL: RCT (Reactant); REM (Removal or disposal); PROC (Process); RACT
(Reactant or reagent)
(materials for degrading **contaminants**)

IT 59858-44-5P 134360-58-0P

RL: NUU (Other use, unclassified); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses) (materials for degrading contaminants)

RN 59858-44-5 HCAPLUS

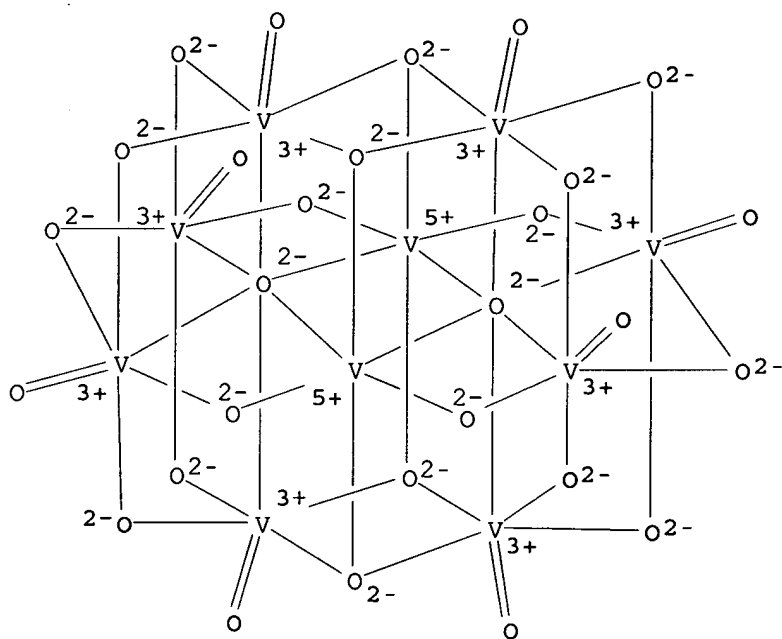
CN 1-Butanaminium, N,N,N-tributyl-, tetradeca- μ -oxo-tetra- μ 3-oxodi- μ 6-oxooctaoxodecavanadate(6-) (6:1) (9CI) (CA INDEX NAME)

CM 1

CRN 12397-12-5

CMF 028 V10

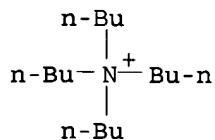
CCI CCS



CM 2

CRN 10549-76-5

CMF C16 H36 N



RN 134360-58-0 HCAPLUS

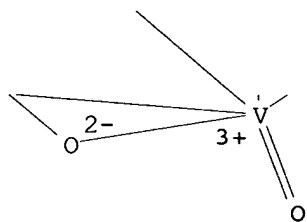
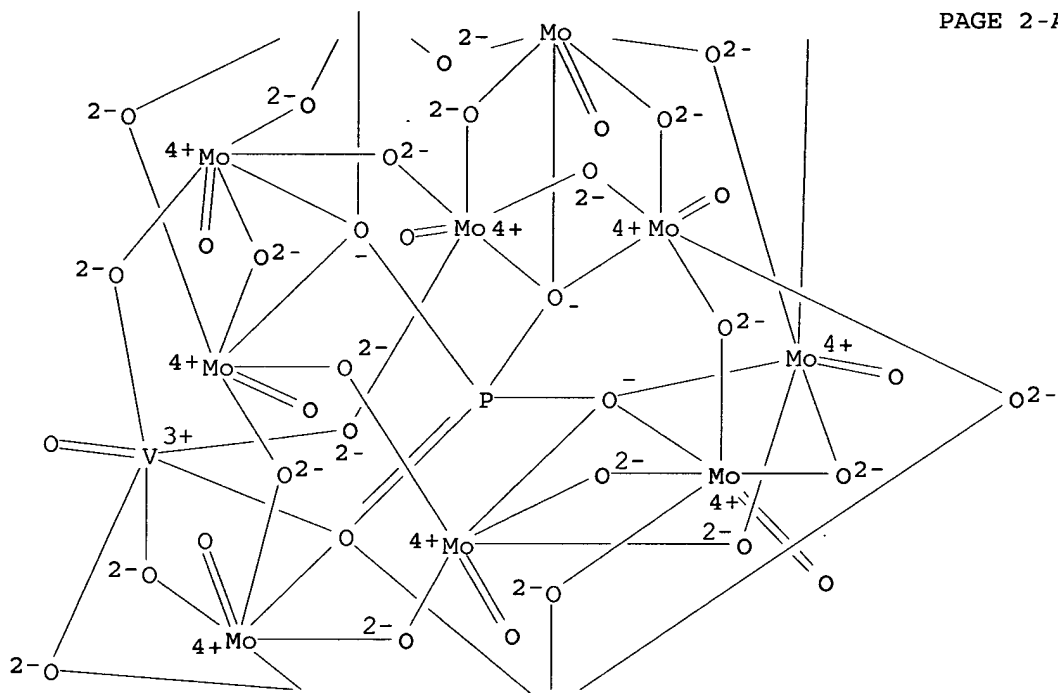
CN 1-Butanaminium, N,N,N-tributyl-, (heptadeca- μ -oxodecaoxodecamolybdate) hepta- μ -oxodioxo [μ 12- [phosphato(3-)- κ O: κ O: κ O: κ O': κ O': κ O': κ O'']:.kappa

.O''':κO''':κO''':κO''':κO''']divanadate(5-) (5:1)
(9CI) (CA INDEX NAME)

CM 1

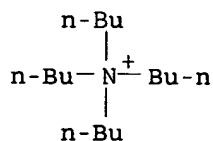
CRN 58071-93-5
CMF Mo10 O40 P V2
CCI CCS

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *



CM 2

CRN 10549-76-5
CMF C16 H36 N



L65 ANSWER 3 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 2003:826766 HCAPLUS

DN 139:308108

TI **Catalysts** for oxidizing olefins and oxidation method using them with high yield

IN Furuya, Masahiko; Liu, Yan-Yong

PA Asahi Kasei Corporation, Japan; Noguchi Research Institute

SO Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003299964	A2	20031021	JP 2002-108337	20020410
PRAI	JP 2002-108337		20020410		
AB	The invention relates to oxidation catalysts Am(MxOy) (A = counter cation; M = Group V, VI element; m = 1-16; x = 2-64; y = 4-196). Thus, cyclooctene was oxidized in the presence of O and [(n-Bu) ₄ N] ₂ (W6O19) to give cyclooctene oxide with selectivity 92.3 mol%.				
IC	ICM B01J031-34				
	ICS B01J031-36; C07C027-00; C07C029-50; C07C035-18; C07C045-34; C07C049-603; C07D301-06; C07D303-04; C07B061-00				
CC	35-2 (Chemistry of Synthetic High Polymers)				
ST	oxidn catalyst olefin epoxidn isopoly acid; tetrabutylammonium hexatungstate oxidn catalyst cyclooctene oxide				
IT	Epoxidation				
	Oxidation				
	(isopoly acid catalysts for oxidizing olefins)				
IT	Alkenes, reactions				
	RL: RCT (Reactant); RACT (Reactant or reagent)				
	(isopoly acid catalysts for oxidizing olefins)				
IT	Epoxidation catalysts				
	Oxidation catalysts				
	(isopoly acid; isopoly acid catalysts for oxidizing olefins)				
IT	Acids, preparation				
	RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)				
	(isopoly, oxidation catalysts ; isopoly acid catalysts for oxidizing olefins)				
IT	Silsesquioxanes				
	RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)				
	(silicate-, fixing catalyst on; isopoly acid catalysts for oxidizing olefins)				
IT	Silicates, preparation				
	RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)				
	(silsesquioxane-, fixing catalyst on; isopoly acid catalysts for oxidizing olefins)				
IT	612035-45-7P				

RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP
(Preparation); USES (Uses)
(fixing catalyst on; isopoly acid catalysts for
oxidizing olefins)

IT 286-20-4P, 7-Oxabicyclo[4.1.0]heptane 286-62-4P, Cyclooctene oxide
RL: IMF (Industrial manufacture); PREP (Preparation)
(isopoly acid catalysts for oxidizing olefins)

IT 110-83-8, Cyclohexene, reactions 931-88-4, Cyclooctene 7782-44-7,
Oxygen, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(isopoly acid catalysts for oxidizing olefins)

IT 12027-67-7, Hexaammonium heptamolybdate
RL: CAT (Catalyst use); USES (Uses)
(oxidation catalyst; isopoly acid catalysts for
oxidizing olefins)

IT 12329-09-8P 12329-10-1P, Bis(tetrabutylammonium) hexatungstate
12390-22-6P, Bis(tetrabutylammonium) hexamolybdate 59054-50-1P
64444-05-9P, Bis(tetrabutylammonium) dimolybdate 68109-03-5P,
Tetrakis(tetrabutylammonium) decatungstate 119720-71-7P 126213-84-1P
196392-01-5P
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP
(Preparation); USES (Uses)
(oxidation catalyst; isopoly acid catalysts for
oxidizing olefins)

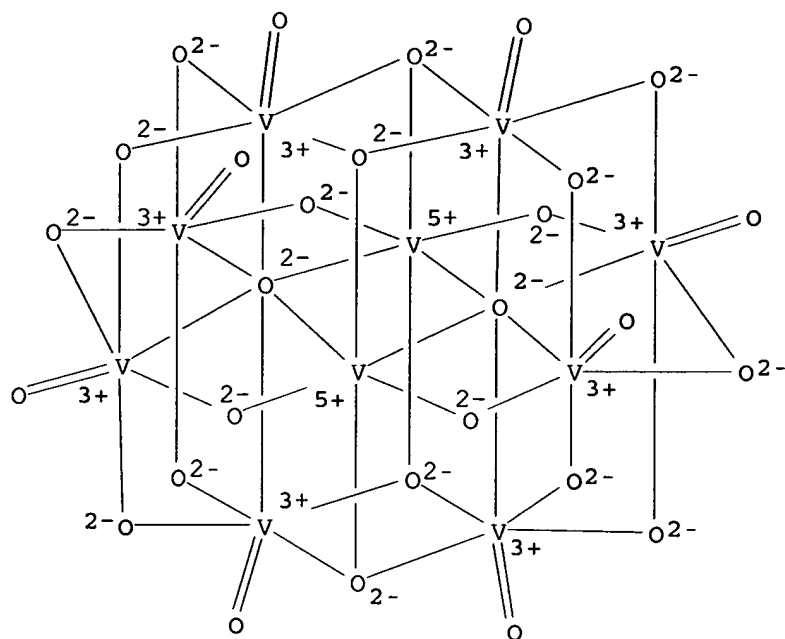
IT 12329-09-8P
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP
(Preparation); USES (Uses)
(oxidation catalyst; isopoly acid catalysts for
oxidizing olefins)

RN 12329-09-8 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, hydrogen tetradeca- μ -oxotetra- μ 3-
oxodi- μ 6-oxooctaoxodecavanadate(6-) (3:3:1) (9CI) (CA INDEX NAME)

CM 1

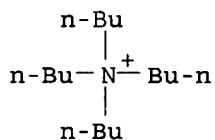
CRN 12397-12-5
CMF 028 V10
CCI CCS



CM 2

CRN 10549-76-5

CMF C16 H36 N

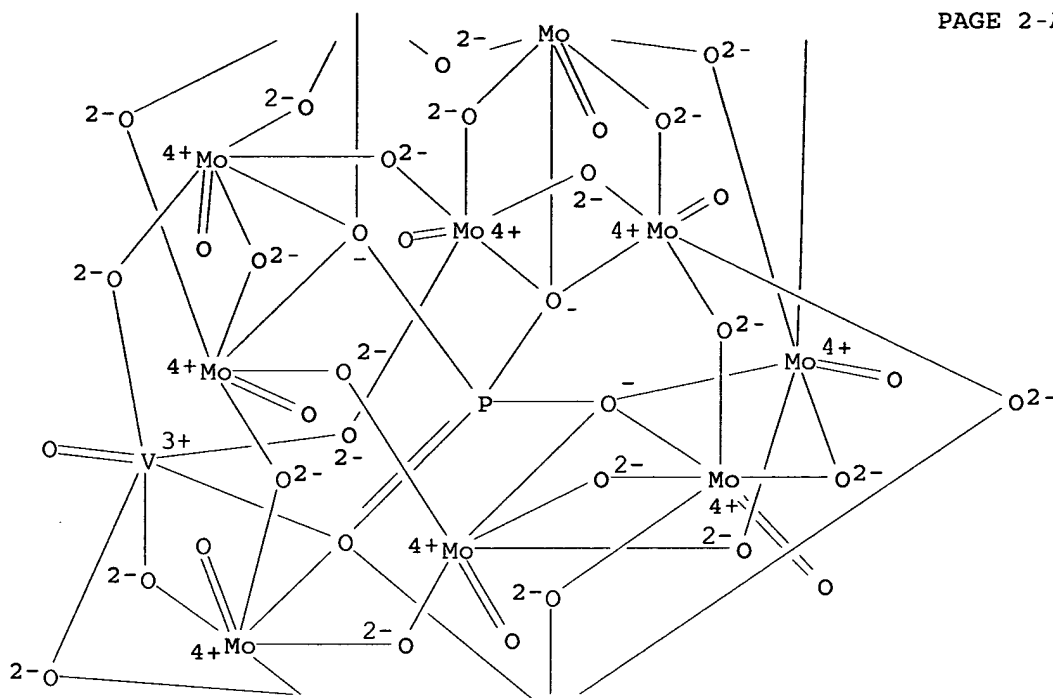


L65 ANSWER 4 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN
 AN 2003:715242 HCAPLUS
 DN 140:183533
 TI Oxidation of cyclohexene and α -pinene with O₂-H₂ mixture in the presence of supported platinum or palladium **catalysts**
 AU Kuznetsova, N. I.; Kuznetsova, L. I.; Kirillova, N. V.; Pokrovskii, L. M.; Detusheva, L. G.; Ancel, J.-E.; Likholobov, V. A.
 CS G. K. Boreskov Institute of Catalysis, Siberian Branch of the Russian Academy of Sciences, Novosibirsk, 630090, Russia
 SO Russian Chemical Bulletin (Translation of Izvestiya Akademii Nauk, Seriya Khimicheskaya) (2003), 52(7), 1544-1551
 CODEN: RCBUEY; ISSN: 1066-5285
 PB Kluwer Academic/Consultants Bureau
 DT Journal
 LA English
 OS CASREACT 140:183533
 AB Oxidation of cyclohexene and α -pinene with an O₂-H₂ mixture in the catalytic systems containing Pt or Pd and heteropoly compds. (HPC) was studied. The main oxidation products are epoxides, allyl alcs., and ketones.

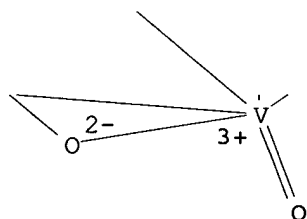
CCI CCS

KATHLEEN FULLER EIC1700 REMSEN 4B28 571/272-2505

PAGE 2-A

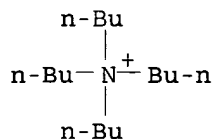


PAGE 3-A



CM 2

CRN 10549-76-5
CMF C16 H36 N



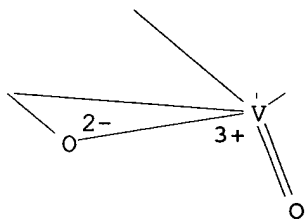
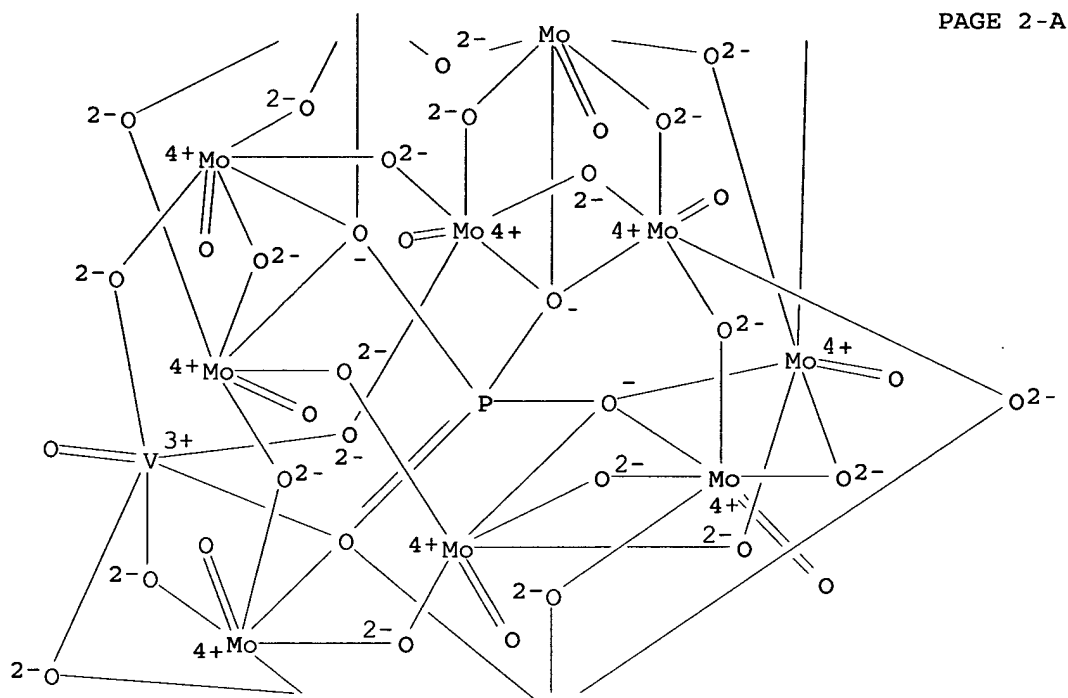
RE.CNT 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L65 ANSWER 5 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:698033 HCAPLUS

KATHLEEN FULLER EIC1700 REMSEN 4B28 571/272-2505

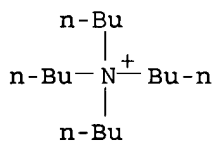
KATHLEEN FULLER EIC1700 REMSEN 4B28 571/272-2505

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *



CM 2

CRN 10549-76-5
CMF C16 H36 N



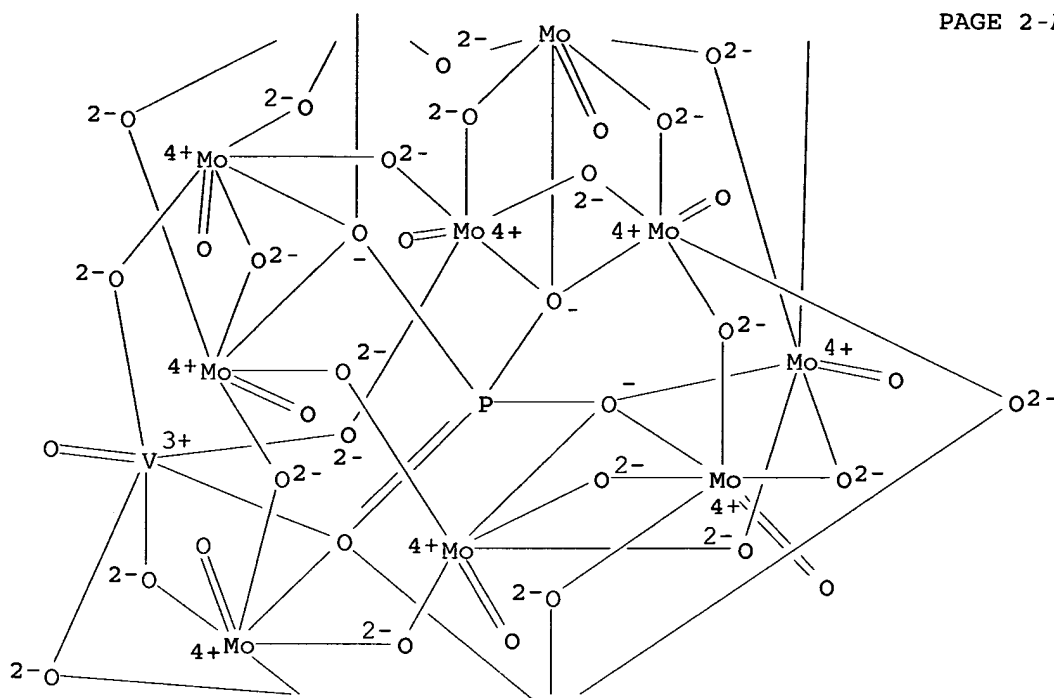
RE.CNT 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

KATHLEEN FULLER EIC1700 REMSEN 4B28 571/272-2505

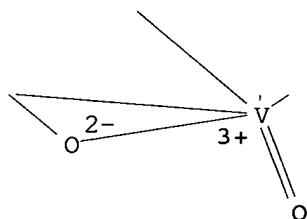
L65 ANSWER 6 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:69806 HCAPLUS
DN 138:368313
TI Activation of nitrous oxide and selective oxidation of alcohols and
alkylarenes catalyzed by the [PV2Mo10O40]5- polyoxometalate ion
AU Ben-Daniel, Revital; Neumann, Ronny
CS Department of Organic Chemistry, Weizmann Institute of Science, Rehovot,
76100, Israel
SO Angewandte Chemie, International Edition (2003), 42(1), 92-95
CODEN: ACIEF5; ISSN: 1433-7851
PB Wiley-VCH Verlag GmbH & Co. KGaA
DT Journal
LA English
OS CASREACT 138:368313
AB A different set of N2O-activation reactions involving the vanadium-containing
Keggin-type polyoxomolybdate, (nBu4N)5(PV2Mo10O40) was investigated. In
this case, selective oxidation by C-H bond activation was possible leading to
the oxidation of (a) primary and secondary alcs. to aldehydes and ketones and
(b) alkyl aroms. to ketones on, or alternatively leading to their
oxydehydrogenation.
CC 21-2 (General Organic Chemistry)
Section cross-reference(s): 67
ST nitrous oxide activation selective oxidn alc alkylarene polyoxometalate
catalyst; molybdovanadophosphate polyoxometalate **catalyst**
oxidn alc alkylarene nitrous oxide activation
IT Aromatic hydrocarbons, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(alkyl; nitrous oxide-activated selective oxidation of alcs. and
alkylarenes in presence of molybdovanadophosphate polyoxometalate ion
catalyst)
IT Heteropoly acids
RL: **CAT (Catalyst use)**; USES (Uses)
(nitrous oxide-activated selective oxidation of alcs. and alkylarenes in
presence of molybdovanadophosphate polyoxometalate ion **catalyst**
)
IT Aldehydes, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(nitrous oxide-activated selective oxidation of alcs. and alkylarenes in
presence of molybdovanadophosphate polyoxometalate ion **catalyst**
)
IT Ketones, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(nitrous oxide-activated selective oxidation of alcs. and alkylarenes in
presence of molybdovanadophosphate polyoxometalate ion **catalyst**
)
IT Alcohols, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(primary; nitrous oxide-activated selective oxidation of alcs. and
alkylarenes in presence of molybdovanadophosphate polyoxometalate ion
catalyst)
IT Alcohols, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(secondary; nitrous oxide-activated selective oxidation of alcs. and
alkylarenes in presence of molybdovanadophosphate polyoxometalate ion
catalyst)
IT Oxidation
Oxidation **catalysts**
(selective; nitrous oxide-activated selective oxidation of alcs. and
alkylarenes in presence of molybdovanadophosphate polyoxometalate ion

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

PAGE 2-A

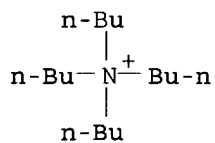


PAGE 3-A



CM 2

CRN 10549-76-5
CMF C16 H36 N



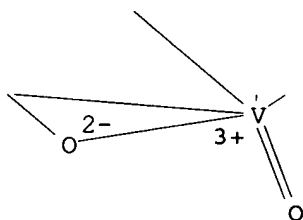
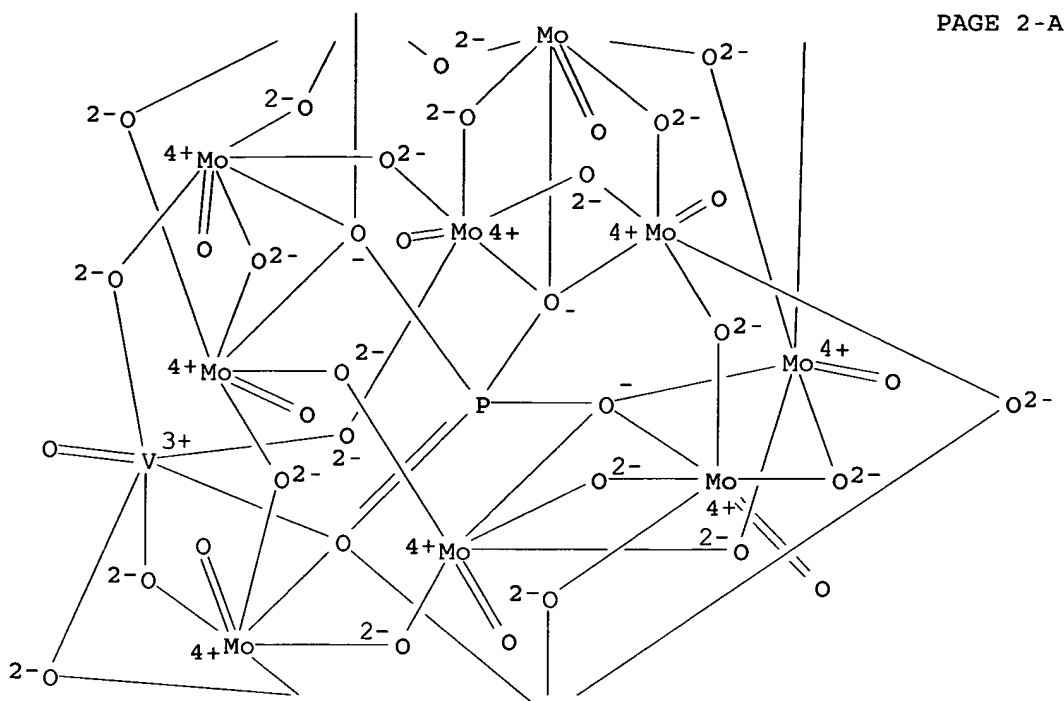
RE.CNT 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L65 ANSWER 7 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:667570 HCAPLUS

KATHLEEN FULLER EIC1700 REMSEN 4B28 571/272-2505

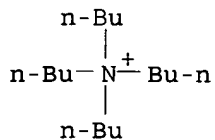
KATHLEEN FULLER EIC1700 REMSEN 4B28 571/272-2505

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *



CM 2

CRN 10549-76-5
CMF C16 H36 N



RE.CNT 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L65 ANSWER 8 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN

KATHLEEN FULLER EIC1700 REMSEN 4B28 571/272-2505

AN 2002:243085 HCAPLUS
DN 137:14814
TI Reactions of trivacant Wells-Dawson heteropolytungstates. Ionic strength and Jahn-Teller effects on formation in multi-iron complexes
AU Anderson, Travis M.; Zhang, Xuan; Hardcastle, Kenneth I.; Hill, Craig L.
CS Department of Chemistry, Emory University, Atlanta, GA, 30322, USA
SO Inorganic Chemistry (2002), 41(9), 2477-2488
CODEN: INOCAJ; ISSN: 0020-1669
PB American Chemical Society
DT Journal
LA English
OS CASREACT 137:14814
AB Reaction of α -P2W15O5612- and Fe(III) in a saturated NaCl solution produces a trisubstituted Wells-Dawson structure with three low-valent metals, α -(FeIIICl)2(FeIIIOH2)P2W15O5911- (1). Dissoln. of this species into 1 M NaBr (Br- is noncoordinating) gives the triaquated species α -(FeIIIOH2)3P2W15O599- (2). Ionic strength values of 1 M or greater are necessary to avoid decomposition of 1 or 2 to the conventional sandwich-type complex, $\alpha\beta\alpha$ -(FeIIIOH2)2FeIII2(P2W15O56)212- (3). If the pH is >5, a new triferric sandwich, $\alpha\alpha\beta\alpha$ -(NaOH2)(FeIIIOH2)FeIII2(P2W15O56)214- (4), forms rather than 3. Like the previously reported Wells-Dawson-derived sandwich-type structures with three metals in the central unit ([TMIIFeIII2(P2W15O56)(P2TMII2W13O52)], 16- TM = Cu, Co), this complex has a central α -junction and a central β -junction. Thermal studies suggest that 4 is more stable than 3 over a wide range of temps. and pH values. The intrinsic Jahn-Teller distortion of d-electron-containing metal ions incorporated into the external sites of the central multimetal unit impacts the stoichiometry of their incorporation (with a consequent change in the inter-POM-unit connectivity, where POM = polyoxometalate). Reaction of nondistorting Ni(II) with the diferric lacunary sandwich-type POM $\alpha\alpha\alpha\alpha$ -(NaOH2)2FeIII2(P2W15O56)216- (5) produces $\alpha\beta\alpha$ -(NiIIIOH2)2FeIII2(P2W15O56)214- (6), a Wells-Dawson sandwich-type structure with two Ni(II) and two Fe(III) in the central unit. All structures were characterized by 31P NMR, IR, UV-visible, magnetic susceptibility, and x-ray crystallog. Complexes 4 and 6 are highly selective and effective **catalysts** for the H2O2-based epoxidn. of alkenes.
CC 78-7 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 75
IT Epoxidation **catalysts**
(iron and nickel substituted tungstophosphate complexes for alkenes)
IT Heteropoly acids
RL: **CAT (Catalyst use)**; PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(preparation, crystal structure, thermal stability and **catalyst** for hydrogen peroxide-based epoxidn. of alkenes)
IT 433227-61-3P
RL: **CAT (Catalyst use)**; PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(preparation and **catalyst** for hydrogen peroxide-based epoxidn. of alkenes)
IT 433227-67-9P
RL: **CAT (Catalyst use)**; SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(preparation and **catalyst** for hydrogen peroxide-based epoxidn. of alkenes)
IT 433227-61-3P
RL: **CAT (Catalyst use)**; PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(preparation and catalyst for hydrogen peroxide-based epoxidn. of alkenes)

RN 433227-61-3 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, (aquatriferrate)dohexaconta- μ -oxodi-
 μ 3-oxodotriacontaoxo [μ 8- [phosphato(3-)- κ O: κ O: κ O':.
 κ appa.O': κ O': κ O': κ O': κ O']] tris [μ 9-
[phosphato(3-)- κ O: κ O: κ O: κ O': κ O': κ O'] :.
 κ appa.O': κ O': κ O']] triacontatungstate(15-) (15:1) (9CI)
(CA INDEX NAME)

CM 1

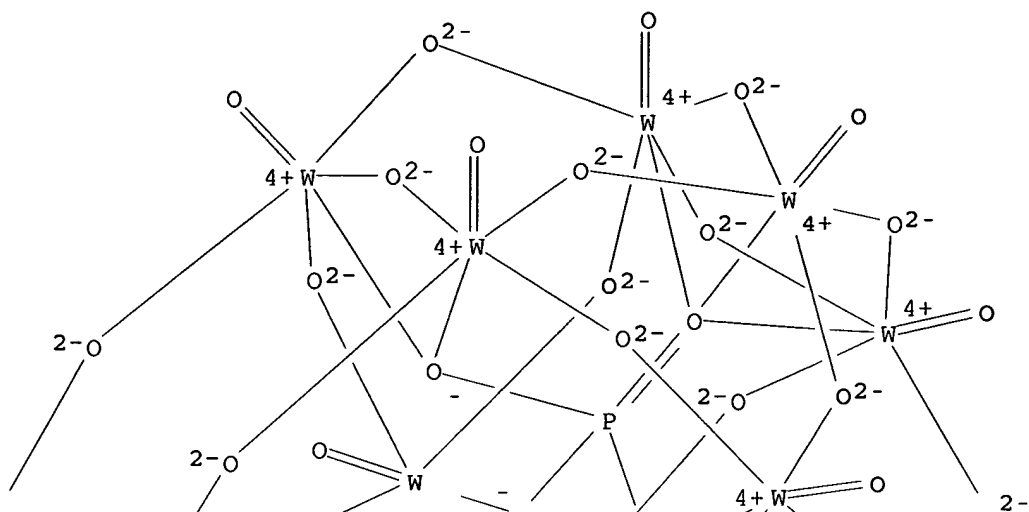
CRN 433227-60-2

CMF Fe3 H2 O113 P4 W30

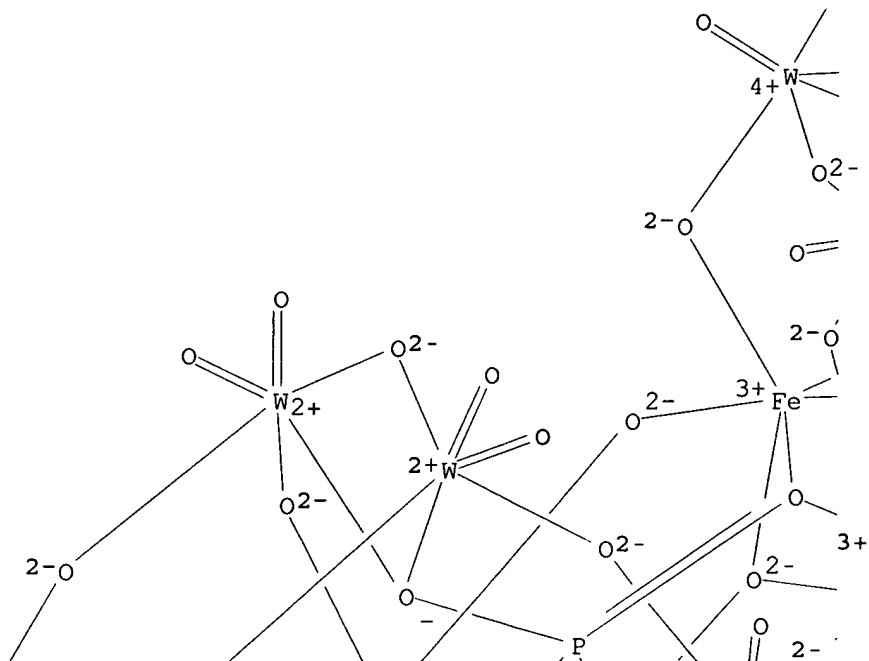
CCI CCS

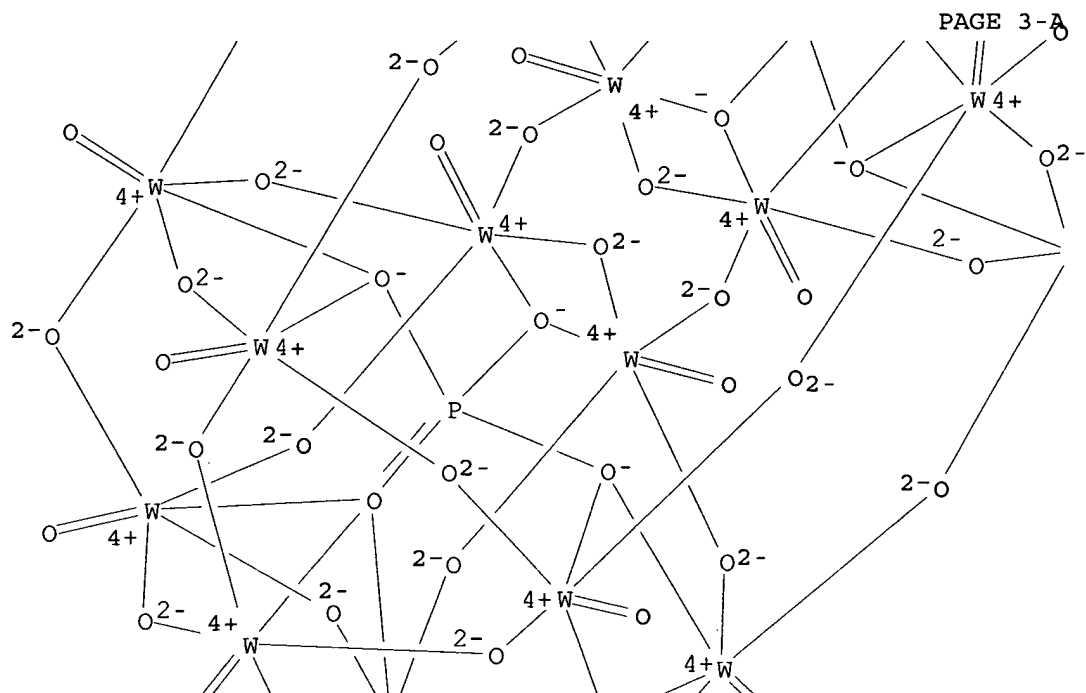
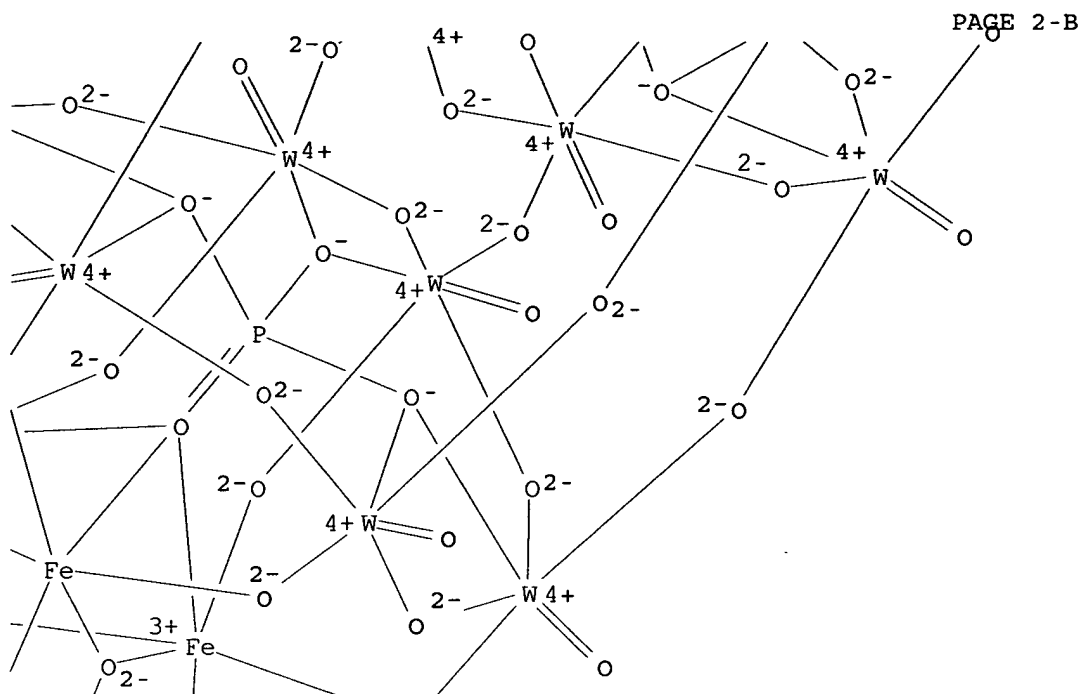
PAGE 1-A

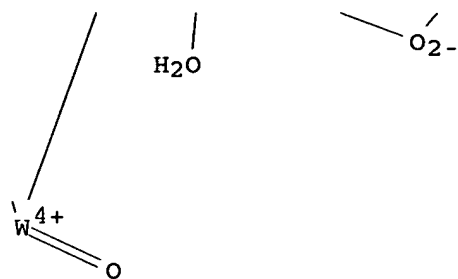
PAGE 1-B



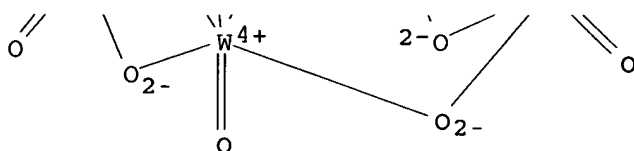
PAGE 2-A







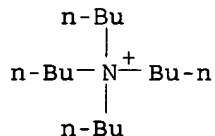
PAGE 3-B



PAGE 4-A

CM 2

CRN 10549-76-5
CMF C16 H36 N



RE.CNT 91 THERE ARE 91 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L65 ANSWER 9 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2000:488611 HCAPLUS
DN 133:216848
TI Synthesis and structure of a new reduced isopolyvanadate, [V₁₇O₄₂]⁴⁻
AU Hayashi, Yoshihito; Fukuyama, Kumiko; Takatera, Tamaki; Uehara, Akira
CS Department of Chemistry, Faculty of Science, Kanazawa University,
Kanazawa, 920-1192, Japan
SO Chemistry Letters (2000), (7), 770-771
CODEN: CMLTAG; ISSN: 0366-7022
PB Chemical Society of Japan
DT Journal
LA English
AB Reduced heptadecavanadate [V₁₇O₄₂]⁴⁻ was synthesized from [H₃V₁₀O₂₈]³⁻ by
the reaction using Pd 1,5-COD complex, and characterized by a single
crystal x-ray structure anal. The structure can be regarded as a fused
decavanadate and consists of an arrangement of thirteen edge shared VO₆
octahedra and four VO₅ square pyramids.
CC 78-7 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 75

IT 12080-32-9
 RL: CAT (Catalyst use); USES (Uses)
 (catalyst for preparation of reduced heptadecanuclear
 isopolyvanadate complex)

IT 12329-09-8
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (for preparation of reduced heptadecanuclear isopolyvanadate complex)

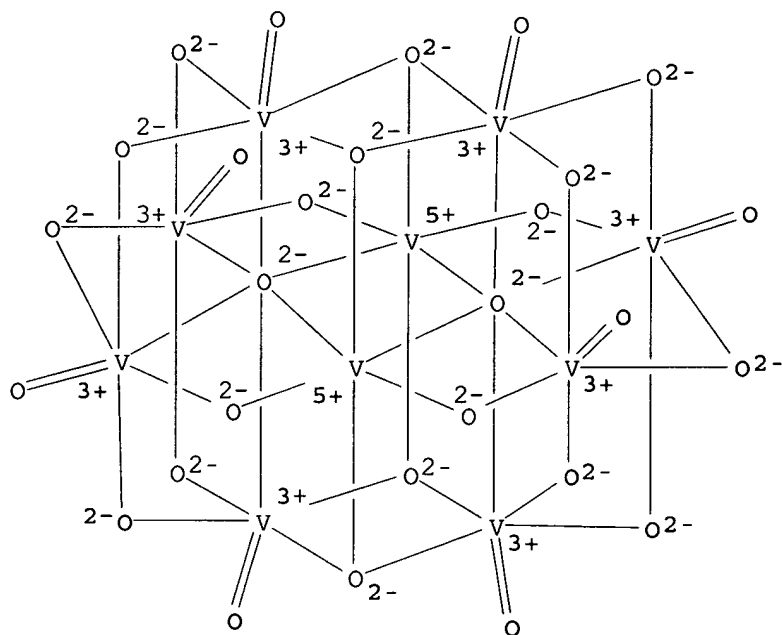
IT 12329-09-8
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (for preparation of reduced heptadecanuclear isopolyvanadate complex)

RN 12329-09-8 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, hydrogen tetradeca- μ -oxotetra- μ 3-
 oxodi- μ 6-oxooctaoxodecavanadate(6-) (3:3:1) (9CI) (CA INDEX NAME)

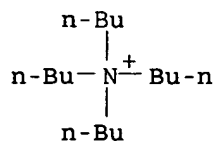
CM 1

CRN 12397-12-5
 CMF O28 V10
 CCI CCS



CM 2

CRN 10549-76-5
 CMF C16 H36 N



RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L65 ANSWER 10 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1998:684433 HCAPLUS
DN 129:339856
TI Method, **compositions**, and aerosol spray containing a
polyoxometalate for treating and preventing respiratory viral infections
IN Schinazi, Raymond F.; Hill, Craig L.
PA USA
SO U.S., 18 pp., Cont.-in-part of U.S. Ser. No. 312,561, abandoned.
CODEN: USXXAM
DT Patent
LA English

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5824706	A	19981020	US 1995-399700	19950303
	WO 9609764	A1	19960404	WO 1995-US11961	19950926
	W: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM				
	RW: KE, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	AU 9536366	A1	19960419	AU 1995-36366	19950926
	US 6020369	A	20000201	US 1998-111275	19980707
PRAI	US 1994-312561	B2	19940926		
	US 1995-399700	A	19950303		
	WO 1995-US11961	W	19950926		
AB	Respiratory viral infections may be effectively prevented or treated by administering an aerosol spray comprising a polyoxometalate to the lungs. (Me3NH)5TaSiW11O40 had a selectivity index greater than 300 when evaluated in HIV-1 acutely infected primary human PBM cells and had no cytotoxicity to uninfected human PBM cells when evaluated up to 100 µM.				
IC	ICM A01N055-02 ICS A01N059-14; A01N059-16; A01N059-20				
INCL	514492000				
CC	1-5 (Pharmacology) Section cross-reference(s): 29, 63, 78				
IT	11078-54-9 12027-38-2D, solid solution with ammonium analog 12045-18-0 12059-48-2 12141-67-2 12142-54-0 12200-88-3 12297-12-0 12297-12-0D, solid solns. with ammonium analog and protonated amino acid analog 12329-09-8 12329-10-1 12390-22-6 12411-74-4 12436-83-8 37300-95-1 39282-41-2 59054-50-1 59111-46-5 63950-53-8 63995-70-0 64684-58-8 70316-17-5 75656-59-6 77981-80-7D, solid solution with tetrahydrogen analog 79104-95-3 81552-97-8 82679-05-8 83721-03-3 83721-04-4 84303-03-7 84303-05-9 84750-84-5 87261-30-1 89899-81-0, Ammonium antimony sodium tungsten oxide ((NH4)17Sb9Na2W21O86) 92762-45-3 92767-45-8 93425-27-5 100513-52-8 101144-77-8 101346-99-0 101347-00-6				

101347-04-0 101347-05-1 101347-09-5 101347-11-9 101347-12-0
101347-13-1 102073-48-3 108834-36-2 108987-13-9 110294-54-7
110313-16-1 110717-64-1 110717-65-2 110717-67-4 110717-70-9
111933-31-4 112763-08-3 112763-08-3D, solid solution with tetrahydrogen
analog 116434-67-4 119390-04-4 119720-71-7 119923-89-6
123639-37-2 129238-68-2 129238-69-3D, solid solns. with sodium and
tetramethylammonium analogs 129238-70-6D, solid solns. with sodium and
tetramethylammonium analogs 129572-46-9 129572-47-0 129592-85-4
131359-48-3 131541-68-9 131541-69-0 131541-70-3 132460-56-1
132460-57-2 132460-58-3 134107-05-4 138026-47-8 139631-90-6
139631-92-8 139631-93-9 139631-95-1 139631-96-2 139631-98-4
139632-00-1 141483-63-8 141532-40-3 141532-61-8 143823-91-0
143823-92-1 144547-23-9 146026-67-7 148362-93-0 149275-00-3
152444-38-7 152444-39-8 152444-40-1 152514-03-9 153481-12-0
153481-15-3 153541-07-2 158702-61-5 160097-69-8D, solid solns. with
sodium and potassium analogs 160097-70-1D, solid solns. with potassium
and sodium analogs 160220-13-3 160241-96-3 162958-07-8D, solid solns.
with potassium and tetramethylammonium analogs 162958-09-0 162958-11-4
162958-12-5 162958-14-7 162958-16-9 162958-18-1 162958-20-5
162958-21-6 162958-22-7 162958-22-7D, solid solns. with potassium and
tetramethylammonium analogs 163128-97-0 163128-98-1 163151-26-6
163151-27-7 167397-05-9 170126-82-6 187086-33-5 189277-29-0
189277-31-4 189823-27-6 189823-28-7 189823-30-1 189823-33-4
189823-37-8 189823-38-9 194150-76-0 215545-74-7 215545-75-8,
Potassium titanium tungsten oxide (K7Ti2W10O40) 215545-77-0
215545-78-1 215545-79-2 215545-80-5 215545-81-6 215545-82-7
215545-83-8 215545-84-9 215545-85-0 215545-86-1 215591-58-5
215594-35-7 215594-50-6 215594-63-1 215594-64-2 215594-65-3D,
solid solution with histidine or lysine analog 215594-66-4D, solid solution
with sodium analog 215594-68-6 215594-70-0 215594-72-2 215594-74-4
215594-76-6 215594-77-7 215594-78-8 215594-79-9 215594-80-2
215594-81-3 215594-82-4 215594-83-5 215594-86-8 215594-87-9
215594-88-0 215594-89-1 215594-90-4 215594-91-5 215594-93-7
215594-95-9 215594-98-2 215595-00-9 215595-02-1 215595-04-3
215595-06-5 215595-07-6 215595-09-8 215595-11-2 215595-12-3
215595-13-4 215595-14-5 215595-15-6 215595-16-7 215595-17-8D,
Niobium sodium tungsten oxide (Nb4Na6W2O19), solid solution with potassium
analog 215595-18-9 215595-19-0 215595-21-4 215595-22-5D, solid
solution with sodium analog 215595-23-6D, Niobium potassium tungsten oxide
(Nb4K6W2O19), solid solution with sodium analog 215595-24-7 215601-32-4
215601-56-2 215601-59-5

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(method and aerosol spray containing a polyoxometalate for treating and preventing respiratory viral infections)

IT 12329-09-8

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(method and aerosol spray containing a polyoxometalate for treating and preventing respiratory viral infections)

RN 12329-09-8 HCAPLUS

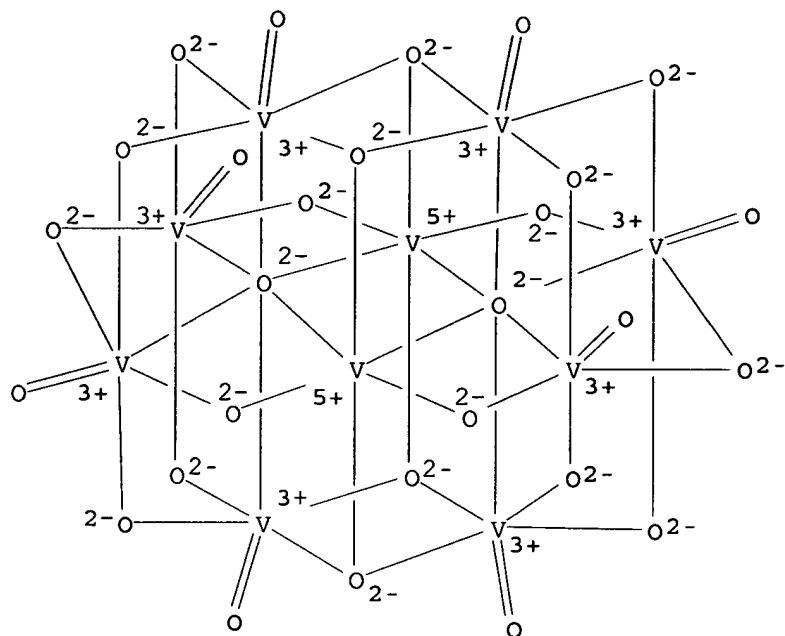
CN 1-Butanaminium, N,N,N-tributyl-, hydrogen tetradeca- μ -oxotetra- μ 3-oxodi- μ 6-oxoocta-oxodecavanadate(6-) (3:3:1) (9CI) (CA INDEX NAME)

CM 1

CRN 12397-12-5

CMF 028 V10

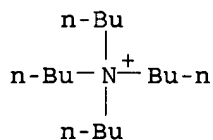
CCI CCS



CM 2

CRN 10549-76-5

CMF C16 H36 N



RE.CNT 100 THERE ARE 100 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L65 ANSWER 11 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 1997:753705 HCAPLUS

DN 128:80374

TI Functional action of Keggin-type mono-vanadium(V)-substituted
heteropolymolybdate as a single species on catalytic hydroxylation of
benzene in the presence of hydrogen peroxide

AU Nomiya, Kenji; Yagishita, Kazunori; Nemoto, Yukihiro; Kamataki, Tada-aki
CS Hiratsuka, Department of Materials Science, Kanagawa University, Kanagawa
259-12, Japan

SO Journal of Molecular Catalysis A: Chemical (1997), 126(1), 43-53
CODEN: JMCCF2; ISSN: 1381-1169

PB Elsevier Science B.V.

DT Journal

LA English

AB Benzene hydroxylation in the presence of hydrogen peroxide was studied using tetrabutylammonium salts of three types of mono-vanadium-substituted heteropolyanions (HPA) as **catalyst** precursors. [PMo11VO40]4- (PMo11V, 1), which was first prepared herein and identified as a single species. [PMo11VO40]4- (PMo11V', 4), which was obtained traditionally by the so-called ether-extraction method and known as a mixed species only with an averaged composition P:Mo:V = 1:11:1. [PW11VO40]4- (PW11V, 2), which has been prepared as a single species. 1 Catalytically oxidized benzene to phenol under the conditions: 0.1 mmol **catalyst**, 10 mL (113 mmol) benzene, 5 or 10 mL of CH3CN and 2 mL of 30 aqueous H2O2. The catalytic turnover by 1 for phenol production was dependent on the amount of CH3CN: it was 1.3 after 120 h reaction with 10 mL CH3CN and 1.7 after 192 h reaction with 5 mL CH3CN. On the other hand, 2 did not show catalytic activity even after 240 h reaction under the same conditions. In comparison, it was also confirmed there was no catalytic effect by [PMo12O40]3- (PMo12) without a vanadium(V) center. 4 Has apparently shown a more enhanced effect, e.g. with catalytic turnover of 7.5 after 144 h reaction with 10 mL CH3CN. These observations significantly suggest that the catalysis by PMo11V for benzene hydroxylation is due to cooperative action of the molybdenum framework with one vanadium(V) center. Such action of the polyoxoanion framework has not been observed in the selectively site-substituted vanadium(V) heteropolytungstates such as [α-1,2-PW10V2O40]5- and [α-1,2,3-PW9V3O40]6-, the catalyzes by which were due to the dinuclear vanadium centers with corner-shared octahedra. Furthermore, the marked stability of the mono-vanadium(V)-substituted species 1 of several vanadium(V)-substituted heteropolymolybdates as **catalyst** precursors was clarified in the benzene hydroxylation.

CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)
Section cross-reference(s): 25, 45, 78

ST molybdovanadophosphate hydroxylation **catalyst** peroxide benzene;
vanadophosphate molybdo hydroxylation **catalyst** peroxide benzene

IT Hydroxylation

Hydroxylation **catalysts**

(Keggin-type molybdovanadophosphates as hydroxylation **catalyst**
for benzene)

IT Heteropoly acids

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(molybdovanadophosphates; preparation of Keggin-type molybdovanadophosphates
as hydroxylation **catalyst** for benzene)

IT 71-43-2, Benzene, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(Keggin-type molybdovanadophosphates as hydroxylation **catalyst**
for benzene)

IT 12026-57-2P 59519-72-1P

RL: **CAT** (**Catalyst use**); SPN (Synthetic preparation); PREP
(Preparation); USES (Uses)
(for preparation of Keggin-type molybdovanadophosphates as hydroxylation
catalyst for benzene)

IT 7631-95-0, Disodium molybdate 7727-18-6, Vanadium oxychloride
12293-21-9 12293-24-2 13472-45-2, Disodium tungstate 13718-26-8,
Vanadate (VO31-) sodium

RL: RCT (Reactant); RACT (Reactant or reagent)
(for preparation of Keggin-type molybdovanadophosphates as hydroxylation
catalyst for benzene)

IT 108-95-2P, Phenol, preparation

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation by benzene hydroxylation in presence of Keggin-type
molybdovanadophosphates **catalyst**)

```
IT      12293-15-1P    53749-36-3P    62036-80-0P 152469-21-1P  
200558-44-7P    200558-46-9P  
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP  
(Preparation); USES (Uses)  
      (preparation of Keggin-type molybdovanadophosphates as hydroxylation  
catalyst for benzene)
```

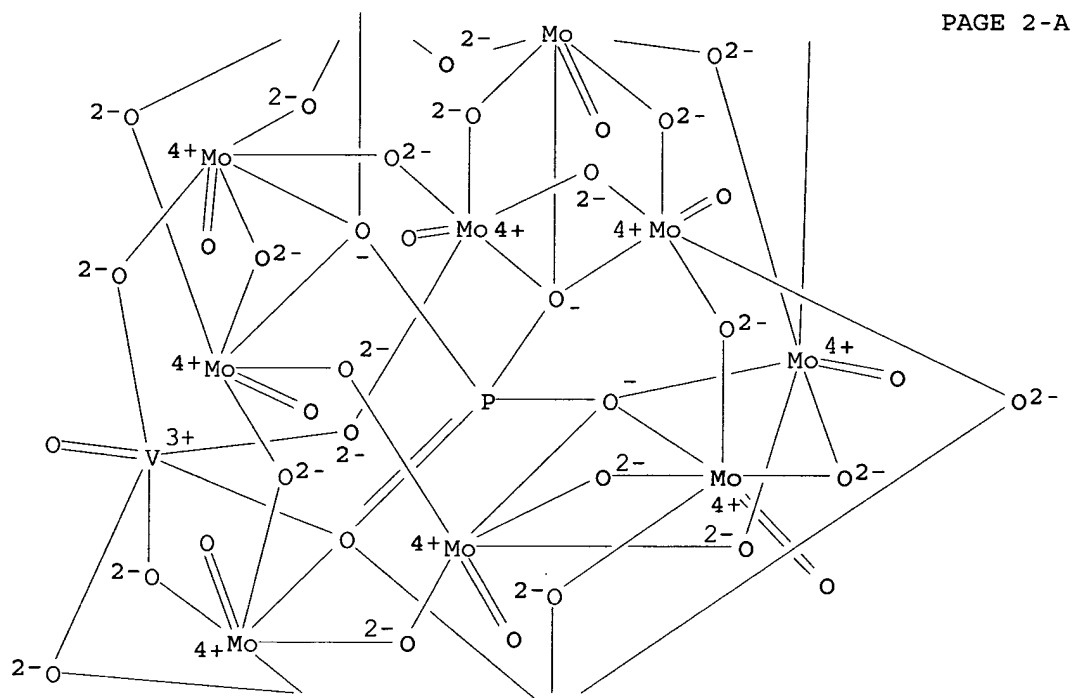
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IT      152469-21-1P  
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP  
(Preparation); USES (Uses)  
      (preparation of Keggin-type molybdovanadophosphates as hydroxylation  
catalyst for benzene)
```

```
RN      152469-21-1 HCAPLUS  
CN      1-Butanaminium, N,N,N-tributyl-, hydrogen (heptadeca-μ-  
oxodecaoxodecamolybdate) hepta-μ-oxodioxo [μ12- [phosphato(3-) -  
κO:κO:κO':κO':κO':κO'':.kappa  
.O'':κO'':κO''':κO''':κO''']]divanadate(5-)  
(4:1:1) (9CI)   (CA INDEX NAME)
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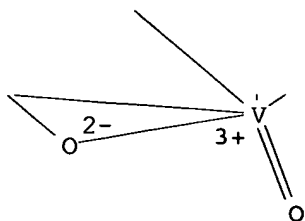
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CRN     58071-93-5  
CMF     Mo10 O40 P V2  
CCI     CCS
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* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *



PAGE 2-A

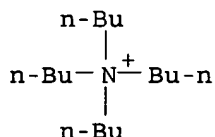


PAGE 3-A

CM 2

CRN 10549-76-5

CMF C16 H36 N



RE.CNT 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L65 ANSWER 12 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 1996:348187 HCAPLUS

DN 125:167087

TI Surface-grafted metal oxide clusters and metal carbonyl clusters in
zeolite micropores; XAFS/FTIR/TPD characterization and catalytic behavior
AU Ichikawa, Masaru; Pan, Wei; Imada, Yasunori; Yamaguchi, Masatugu; Isobe,
Kiyoshi; Shido, Takafumi

CS Catalysis Research Center, Hokkaido University, Sapporo, 060, Japan

SO Journal of Molecular Catalysis A: Chemical (1996), 107(1-3), 23-38

CODEN: JMCCF2; ISSN: 1381-1169

PB Elsevier

DT Journal

LA English

AB SiO₂-grafted [(μ₃-C₄H₇)₂Rh]₂V₄O₁₂ and [(RhCp*)₄V₆O₁₉] as mol. models of
supported Rh **catalysts** characterized by EXAFS, FTIR, and TPD
exhibit high catalytic activities for selective oxidation of propene towards
acetone. SiO₂-impregnated triple cubane-type complete [(RhCp*)₄Mo₄O₁₆]
and incomplete (RhCp*)₂Mo₃O₉(OMe)₄ were reduced under photoillumination
(>365 nm) in CO at 300 K, forming two sets of the intense carbonyl bands
at (2061 and 2021 cm⁻¹) and (2092 and 2035 cm⁻¹). All the carbonyls
attracted to Rh and Mo sites were eliminated by the thermal evacuation at
330-440 K, leaving oxygen-deficient sites of Mo in the cubane-oxide
clusters, which exhibited high catalytic activities for propene metathesis
at 300-343 K. We have conducted the low-temperature homologation of methane on a
series of zeolite-entrapped Ru, Rh, Co and Pt **catalysts** which
were prepared from Ru₃(CO)₁₂/NaY, H₄Ru₄(CO)₁₂/NaY, [HRu₆(CO)₁₈]/NaY,
Co₄(CO)₁₂/NaY, Rh₆(CO)₁₆/NaY, [Pt₃(CO)₃(μ₂-CO)₃]_n- (n = 3, 4)/NaY.
The carbon species [CH_x] (x = 0-3) are deposited on naked metal clusters
in NaY by admission of methane at 423-623 K, which are stoichiometrically
converted by hydrogen at 300-423 K towards C₁-C₅ hydrocarbons without any
formation of graphitic carbons. The yields of C₂+ hydrocarbons in methane
homologation were affected by the size of Ru clusters and carbon coverage

- 0c, as follows; Ru₃/NaY < Ru₄/NaY < Ru₆/NaY < Ru (50 Å) on NaY;
The reactivity of surface carbon bound to metal clusters in zeolites and
mechanism for C-C bond formation are discussed in conjunction with Ru
ensemble-size effects and intrazeolitic chemical circumstances.
- CC 22-7 (Physical Organic Chemistry)
Section cross-reference(s): 67
- ST XAFS surface grafted metal oxide cluster; FTIR surface grafted metal oxide
cluster; TPD surface grafted metal oxide cluster; metal carbonyl cluster
zeolite micropore **catalyst**; catalytic activity grafted silica
zeolite micropore
- IT Clusters
Desorption
Double decomposition
Double decomposition **catalysts**
Infrared spectra
Kinetics of oxidation
Molecular modeling
Oxidation
Oxidation **catalysts**
Reduction, photochemical
(XAFS/FTIR/TPD characterization and catalytic behavior of
surface-grafted metal oxide clusters and metal carbonyl clusters in
zeolite micropores)
- IT Carbonyls
RL: **CAT (Catalyst use)**; PEP (Physical, engineering or chemical
process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant
or reagent); USES (Uses)
(XAFS/FTIR/TPD characterization and catalytic behavior of
surface-grafted metal oxide clusters and metal carbonyl clusters in
zeolite micropores)
- IT Zeolites, reactions
RL: **CAT (Catalyst use)**; PEP (Physical, engineering or chemical
process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant
or reagent); USES (Uses)
(NaY, XAFS/FTIR/TPD characterization and catalytic behavior of
surface-grafted metal oxide clusters and metal carbonyl clusters in
zeolite micropores)
- IT Insertion reaction
Insertion reaction **catalysts**
(homologation, XAFS/FTIR/TPD characterization and catalytic behavior of
surface-grafted metal oxide clusters and metal carbonyl clusters in
zeolite micropores)
- IT 1314-62-1, Vanadia, uses
RL: **CAT (Catalyst use)**; USES (Uses)
(XAFS/FTIR/TPD characterization and catalytic behavior of
surface-grafted metal oxide clusters and metal carbonyl clusters in
zeolite micropores)
- IT 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8,
Ruthenium, uses 7440-48-4, Cobalt, uses
RL: **CAT (Catalyst use)**; PEP (Physical, engineering or chemical
process); PROC (Process); USES (Uses)
(XAFS/FTIR/TPD characterization and catalytic behavior of
surface-grafted metal oxide clusters and metal carbonyl clusters in
zeolite micropores)
- IT 7631-86-9D, Silica, surface-grafted metal oxide clusters 119720-71-7D,
silica grafted 126213-84-1D, silica grafted 135456-91-6D, silica
grafted 169382-89-2D, silica grafted
RL: **CAT (Catalyst use)**; PEP (Physical, engineering or chemical
process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant
or reagent); USES (Uses)

(XAFS/FTIR/TPD characterization and catalytic behavior of surface-grafted metal oxide clusters and metal carbonyl clusters in zeolite micropores)

IT 12308-00-8 12329-09-8 169382-90-5

RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)

(XAFS/FTIR/TPD characterization and catalytic behavior of surface-grafted metal oxide clusters and metal carbonyl clusters in zeolite micropores)

IT 12329-09-8

RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)

(XAFS/FTIR/TPD characterization and catalytic behavior of surface-grafted metal oxide clusters and metal carbonyl clusters in zeolite micropores)

RN 12329-09-8 HCAPLUS

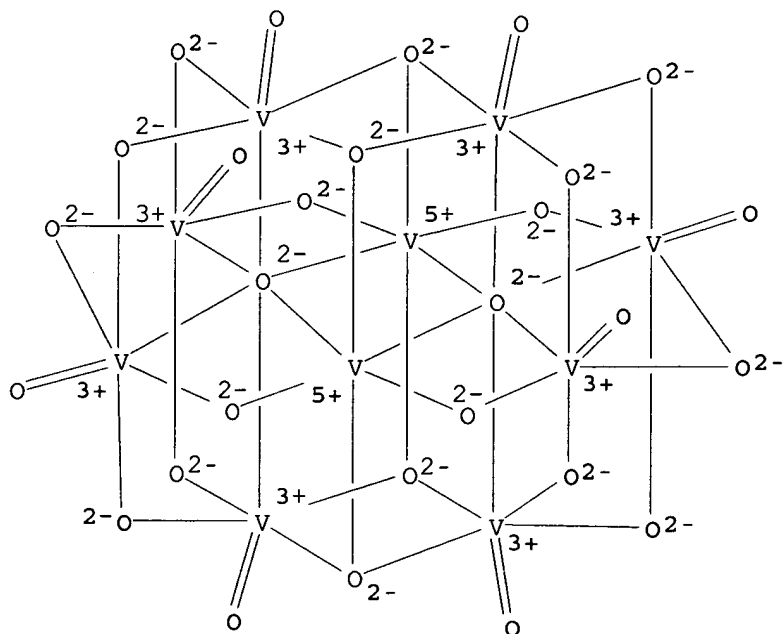
CN 1-Butanaminium, N,N,N-tributyl-, hydrogen tetradeca- μ -oxotetra- μ 3-oxodi- μ 6-oxooctaoxodecavanadate(6-) (3:3:1) (9CI) (CA INDEX NAME)

CM 1

CRN 12397-12-5

CMF 028 V10

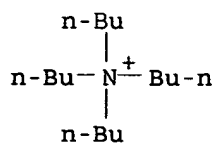
CCI CCS



CM 2

CRN 10549-76-5

CMF C16 H36 N



L65 ANSWER 13 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN
 AN 1995:749836 HCAPLUS
 DN 123:338770
 TI EXAFS/FTIR characterization and selective hydration of acetonitrile on
 silica-supported [(RhCp*)4V6O19]
 AU Yamaguchi, Masatsugu; Shido, Takafumi; Ohtani, Hiroko; Isobe, Kiyoshi;
 Ichikawa, Masaru
 CS Catalysis Res. Cent., Hokkaido Univ., Sapporo, 060, Japan
 SO Chemistry Letters (1995), (8), 717-18
 CODEN: CMLTAG; ISSN: 0366-7022
 PB Nippon Kagakkai
 DT Journal
 LA English
 AB Silica-supported [(RhCp*)4V6O19] exhibited high catalytic activities in
 the gas-phase hydration of acetonitrile towards acetamide at 350-473 K
 with selectivity of over 97% and dehydrogenation of 2-propanol to acetone.
 EXAFS, XPS and FTIR studies suggested that thermal evacuation of
 silica-supported [(RhCp*)4V6O19] at 473 K led to the removal of the
 bridged oxygen atoms in the V6O19 framework. The resulting deoxygenated
 samples enhanced the acetonitrile hydration, while catalyzed the
 dehydration of 2-propanol to propene besides the dehydrogenation reaction,
 probably owing to the newly generated Lewis acid site.
 CC 22-4 (Physical Organic Chemistry)
 Section cross-reference(s): 29, 67
 ST EXAFS selective hydration acetonitrile **catalyst**
 characterization; silica **catalyst** acetonitrile hydration;
 pentamethylcyclopentadienylrhodiumvanadyl oxide **catalyst**
 acetonitrile hydration; FTIR characterization hydration acetonitrile
catalyst
 IT Dehydration, chemical
 Dehydration **catalysts**
 Dehydrogenation
 Dehydrogenation **catalysts**
 Hydration, chemical
 Hydration **catalysts**
 Infrared spectra
 Kinetics of dehydration
 Kinetics of dehydrogenation
 Kinetics of hydration
 (EXAFS/FTIR characterization and selective hydration of acetonitrile on
 silica-supported [(RhCp*)4V6O19])
 IT 1314-62-1, Divanadium pentoxide, uses 12329-09-8
 RL: CAT (**Catalyst use**); USES (Uses)
 (EXAFS/FTIR characterization and selective hydration of acetonitrile on
 silica-supported [(RhCp*)4V6O19])
 IT 119720-71-7
 RL: CAT (**Catalyst use**); PEP (Physical, engineering or chemical
 process); PRP (Properties); PROC (Process); USES (Uses)
 (EXAFS/FTIR characterization and selective hydration of acetonitrile on
 silica-supported [(RhCp*)4V6O19])

IT 12329-09-8

RL: CAT (Catalyst use); USES (Uses)

(EXAFS/FTIR characterization and selective hydration of acetonitrile on silica-supported [(RhCp*)₄V₆O₁₉])

RN 12329-09-8 HCAPLUS

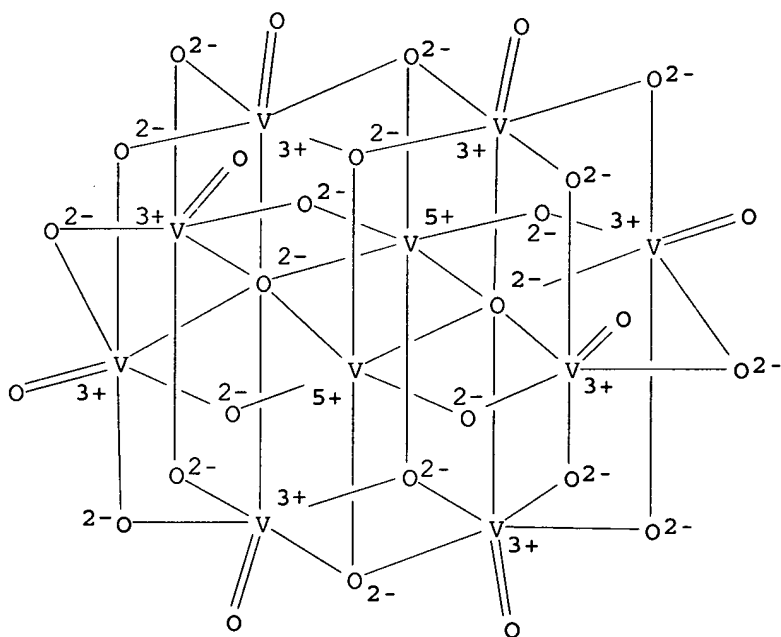
CN 1-Butanaminium, N,N,N-tributyl-, hydrogen tetradeca-μ-oxotetra-μ₃-oxodi-μ₆-oxooctaoxodecavanadate(6-) (3:3:1) (9CI) (CA INDEX NAME)

CM 1

CRN 12397-12-5

CMF 028 V10

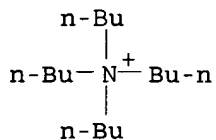
CCI CCS



CM 2

CRN 10549-76-5

CMF C16 H36 N



L65 ANSWER 14 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 1995:747988 HCAPLUS

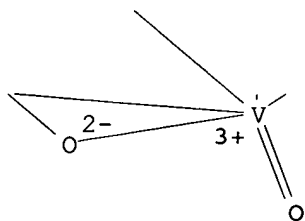
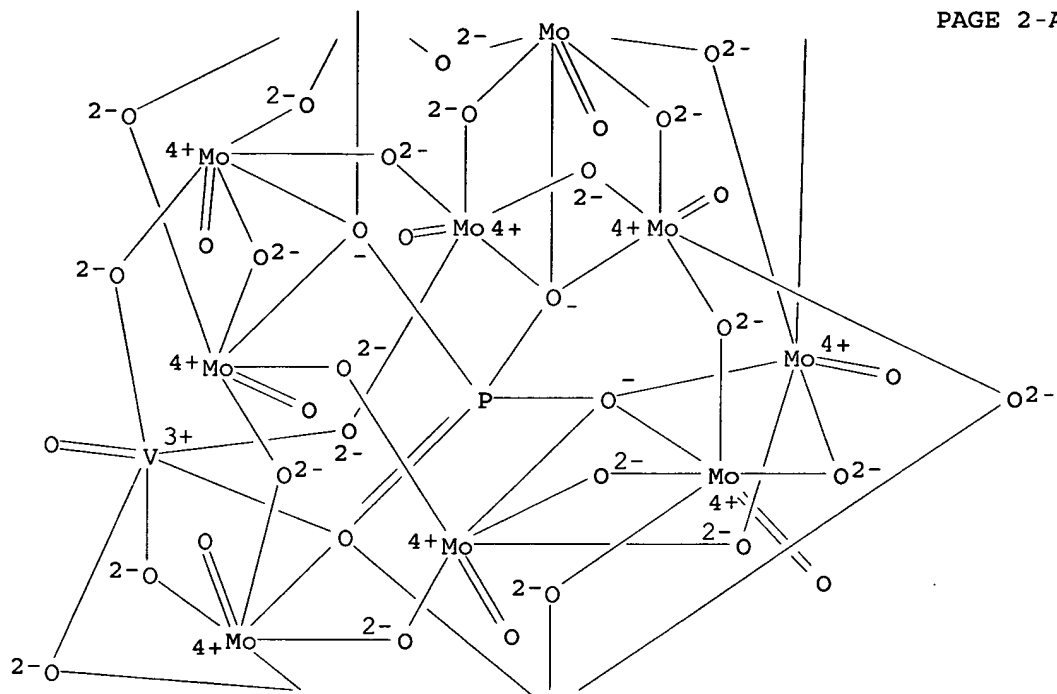
DN 123:313421

KATHLEEN FULLER EIC1700 REMSEN 4B28 571/272-2505

CM 1

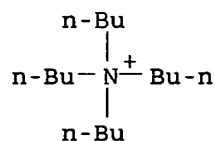
CRN 58071-93-5
CMF Mo10 O40 P V2
CCI CCS

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *



CM 2

CRN 10549-76-5
CMF C16 H36 N



L65 ANSWER 15 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN
 AN 1994:76763 HCAPLUS
 DN 120:76763
 TI Oxidation of alkylaromatic compounds with hydrogen peroxide catalyzed by mixed addenda Keggin heteropolyanions
 AU Neumann, Ronny; de la Vega, Mauricio
 CS Grad. Sch. Appl. Sci. Technol., Casali Inst. Appl. Chem. Hebrew Univ. Jerusalem, Jerusalem, 91904, Israel
 SO Journal of Molecular Catalysis (1993), 84(1), 93-108
 CODEN: JMCADS; ISSN: 0304-5102
 DT Journal
 LA English
 OS CASREACT 120:76763
 AB Keggin type mixed addenda heteropolyanions containing vanadium atoms such as PV2Mo10O405- are shown to be effective **catalysts** for the oxidation of alkylarom. compds. to the resp. acetates or alcs. and aldehydes or ketones using 30% hydrogen peroxide as oxidant. Use of spectroscopic techniques including UV-Vis, IR, vanadium-51 and phosphorus-31 NMR, and ESR shows that the H5PV2Mo10O40 compound is not degraded during the catalytic cycle. Oxidation proceeds by homolytic cleavage of H5PV2Mo10O40-peroxo intermediates. The resulting hydroperoxy and hydroxy radicals initiate the formation of benzyl radicals which lead to the product formation.
 CC 22-7 (Physical Organic Chemistry)
 Section cross-reference(s): 67
 ST oxidn alkylarom compd hydrogen peroxide catalytic; mixed addenda Keggin heteropolyanion oxidn **catalyst**; acetate; aldehyde; ketone
 IT Oxidation
 Oxidation **catalysts**
 Regiochemistry
 Substituent effect
 (oxidation of alkylarom. compds. with hydrogen peroxide catalyzed by mixed addenda Keggin heteropolyanions)
 IT 58-27-5P, 2-Methyl-1,4-naphthoquinone 66-77-3P, 1-Naphthaldehyde 66-99-9P, 2-Naphthaldehyde 86-55-5P, 1-Naphthoic acid 93-09-4P, 2-Naphthoic acid 93-92-5P, 1-Phenylethyl acetate 98-86-2P, Acetophenone, preparation 100-52-7P, Benzaldehyde, preparation 104-21-2P, 4-Methoxybenzyl acetate 104-87-0P, 4-Methylbenzaldehyde 104-88-1P, 4-Chlorobenzaldehyde, preparation 119-61-9P, Benzophenone, preparation 123-11-5P, 4-Methoxybenzaldehyde, preparation 140-11-4P, Benzyl acetate 486-25-9P, Fluorenone 529-20-4P, 2-Methylbenzaldehyde 552-89-6P, 2-Nitrobenzaldehyde 555-16-8P, 4-Nitrobenzaldehyde, preparation 619-90-9P, 4-Nitrobenzyl acetate 620-23-5P, 3-Methylbenzaldehyde 954-67-6P, Diphenylmethyl acetate 1122-91-4P, 4-Bromobenzaldehyde 2216-45-7P, 4-Methylbenzyl acetate 3425-72-7P 5406-33-7P, 4-Chlorobenzyl acetate 6630-33-7P, 2-Bromobenzaldehyde 13098-88-9P 17369-57-2P, 3-Methylbenzyl acetate 17373-93-2P, 2-Methylbenzyl acetate 21388-92-1P, 4-Bromobenzyl acetate 25017-68-9P 35480-23-0P 53039-57-9P 77376-01-3P, 2-Nitrobenzyl acetate 82466-12-4P, 2-Bromobenzyl acetate 152171-78-3P 152469-20-0P 152469-21-1P

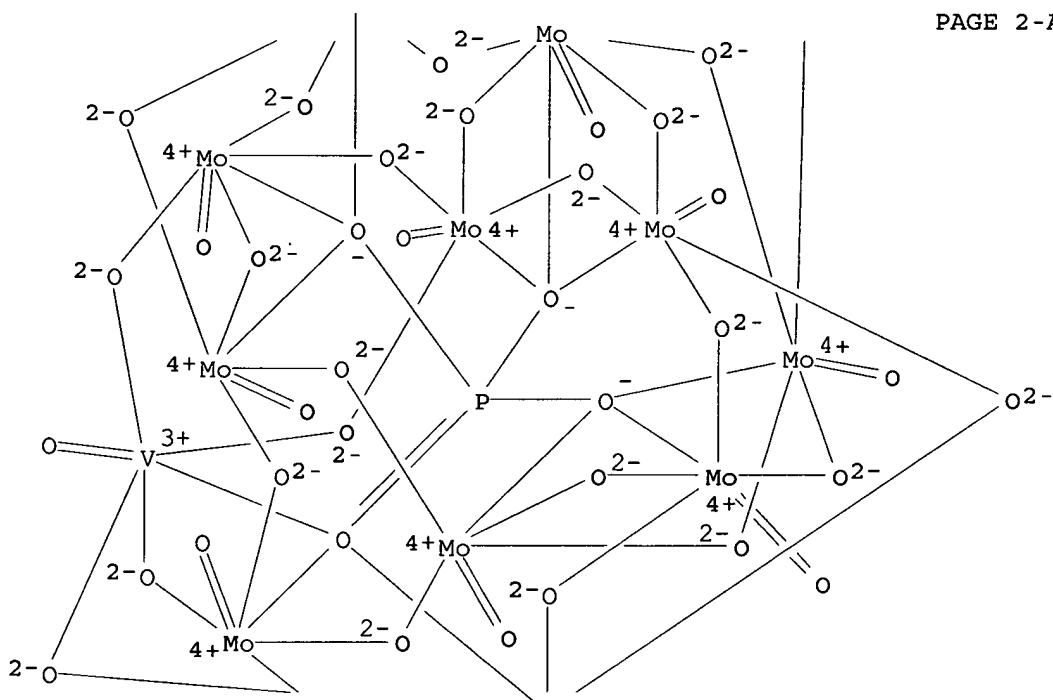
IT 152469-21-1P

RN 152469-21-1 HCAPLUS

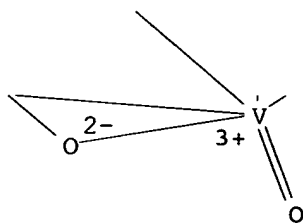
CM 1

CRN 58071-93-5
CMF Mo10 040 P V2
CCI CCS

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *



PAGE 2-A

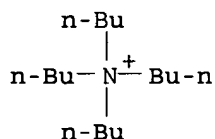


PAGE 3-A

CM 2

CRN 10549-76-5

CMF C16 H36 N



L65 ANSWER 16 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN
 AN 1992:439086 HCAPLUS
 DN 117:39086
 TI Tridecavanadate, [V13O34]³⁻, a new high-potential isopolyvanadate
 AU Hou, Dong; Hagen, Karl S.; Hill, Craig L.
 CS Dep. Chem., Emory Univ., Atlanta, GA, 30322, USA
 SO Journal of the American Chemical Society (1992), 114(14), 5864-6
 CODEN: JACSAT; ISSN: 0002-7863
 DT Journal
 LA English
 AB Refluxing (Bu₄N)3H3V10O28 in acetonitrile (26 mM) for 7 h under N₂ produces (Bu₄N)3[V13O34] (1) whereas V. W. Day et al. (1989) established that the diprotonated analog, (Bu₄N)4H2V10O28 under similar conditions generates the inclusion complex, [Me3CN.(V12O324-)]. The x-ray structure of 1 which crystallizes in the monoclinic space group P21/c with a 23.156(6), b 11.457(3), c 28.936(7) Å, β 94.02(2)°, and Z = 4 with structure refinement of 4906 reflections with F > 6.0σ(F) converged at R = 0.0719 shows the layered structural motif approximating close-packing and the threefold symmetry of the C_{3v} mol. The 51V NMR spectrum of 1 indicates that the solid state structure is maintained in solution (CD₃CN at 25°). 1 Has the lowest charge d. of any polyvanadate and the highest potential of any monometallic isopolyoxometalate reported to date. Ph₃P reduces 1 in wet acetonitrile stoichiometrically, rapidly at 25°, to generate cleanly the corresponding one-electron reduced complex, [V13O34]⁴⁻, 2, and Ph₃PO. Several oxidants including Me₃COOH reoxidize 2 to 1; reoxidn. by O₂ is slow. The oxidation of an exemplary organic substrate, tetrahydrothiophene by Me₃COOH catalyzed by 1 exhibited k_{catalyzed} by 1/k_{uncatalyzed}, at 70° in CH₃CN = 27.

CC 78-7 (Inorganic Chemicals and Reactions)
 Section cross-reference(s): 22, 67, 75

ST crystal structure tridecavanadate; tridecavanadate prepn structure redox; vanadate trideca prepn structure oxidn; **catalyst** tridecavanadate tetrahydrothiophene oxidn

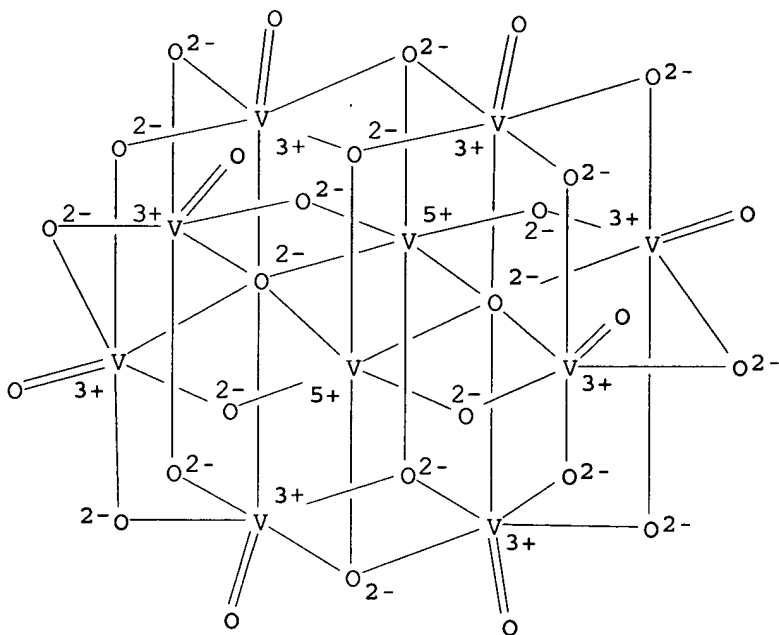
IT Oxidation catalysts
 (tridecavanadate, for organic substrates)
 IT 12329-09-8P 142005-04-7P, Vanadate (V130344-)
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of)
 IT 12329-09-8P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of)
 RN 12329-09-8 HCAPLUS
 CN 1-Butanaminium, N,N,N-tributyl-, hydrogen tetradeca- μ -oxotetra- μ 3-
 oxodi- μ 6-oxoocta-oxodecavanadate(6-) (3:3:1) (9CI) (CA INDEX NAME)

CM 1

CRN 12397-12-5

CMF 028 V10

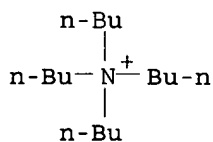
CCI CCS



CM 2

CRN 10549-76-5

CMF C16 H36 N



L65 ANSWER 17 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1991:428470 HCAPLUS
DN 115:28470
TI Comparative study of polyoxometalates and semiconductor metal oxides as **catalysts**. Photochemical oxidative degradation of thioethers
AU Chambers, R. Carlisle; Hill, Craig L.
CS Dep. Chem., Emory Univ., Atlanta, GA, 30322, USA
SO Inorganic Chemistry (1991), 30(13), 2776-81
CODEN: INOCAJ; ISSN: 0020-1669
DT Journal
LA English
AB The photochem. degradation of thioether substrates catalyzed by representative semiconductor metal oxides (anatase TiO₂, SnO₂, cubic WO₃, and CdS) and photoredox-active early-transition-metal polyoxometalates (W10O324-PMo12O403-, PW12O403-, SiMo12O404-, PV2Mo10O405-, CuIIW11PO395-, and P2W18O626-) have been examined under both anaerobic and aerobic conditions. Under anaerobic conditions, all the semiconductors are completely ineffective at photochem. oxidizing or degrading the exemplary thioether substrate tetrahydrothiophene (THT) in the oxidatively resistant solvent acetonitrile. In contrast, all the homogeneous polyoxometalate systems under the same reaction conditions, except the neutral tetra-n-butylammonium (Q) salt of PW12O403-, are quite effective. The latter systems generate products derived from the carbon-based radical α to the sulfur atom and not sulfoxide or sulfone, the usual products of thioether oxidation by oxometal species. The rate for the most active anaerobic system, that involving the photochem. degradation of THT by Q4W10O32, under optically dilute conditions, is first order in W10O324- and light intensity and variable order in THT substrate. A rate law consistent with these data is given. Upon addition of O₂, TiO₂ (with or without Pt(0)) becomes highly active, SnO₂ becomes active, but WO₃ and CdS remain inactive. Reactivity in thioether oxidation is dominated by the interactions of the semiconductors with O₂ and O₂-derived intermediates; there is no correlation between reactivity and semiconductor band gap. Upon addition of O₂, all the polyoxometalate systems become more active. Both the semiconductors and polyoxometalates under aerobic conditions oxidize thioethers further than the sulfoxides or sulfones to a range of products.
CC 22-7 (Physical Organic Chemistry)
ST thioether photooxidn kinetics mechanism; polyoxometalate **catalyst** photooxidn; semiconductor metal oxide **catalyst** photooxidn
IT Sulfides, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(photochem. degradation of, in presence of semiconductor metal oxide and photoredox-active early-transition metal polyoxometalates as **catalysts**)
IT Photolysis **catalysts**
(semiconductor metal oxides and photoredox-active early-transition metal polyoxometalates, for tetrahydrothiophene)
IT Oxidation **catalysts**
(photochem., semiconductor metal oxides and photoredox-active early transition metal polyoxometalates, for thioethers)
IT 1306-23-6, Cadmium sulfide, uses and miscellaneous 1314-35-8, Tungsten trioxide, uses and miscellaneous 12293-21-9 13463-67-7, Titanium dioxide, uses and miscellaneous 18282-10-5, Tin dioxide 53749-36-3 53749-37-4 59138-97-5 68109-03-5 110294-54-7 **134360-58-0** 134360-59-1
RL: CAT (**Catalyst use**); USES (Uses)
(**catalysts**, for photolysis of tetrahydrothiophene)
IT 110-01-0, Tetrahydrothiophene

IT 134360-58-0

RN 134360-58-0 HCAPLUS

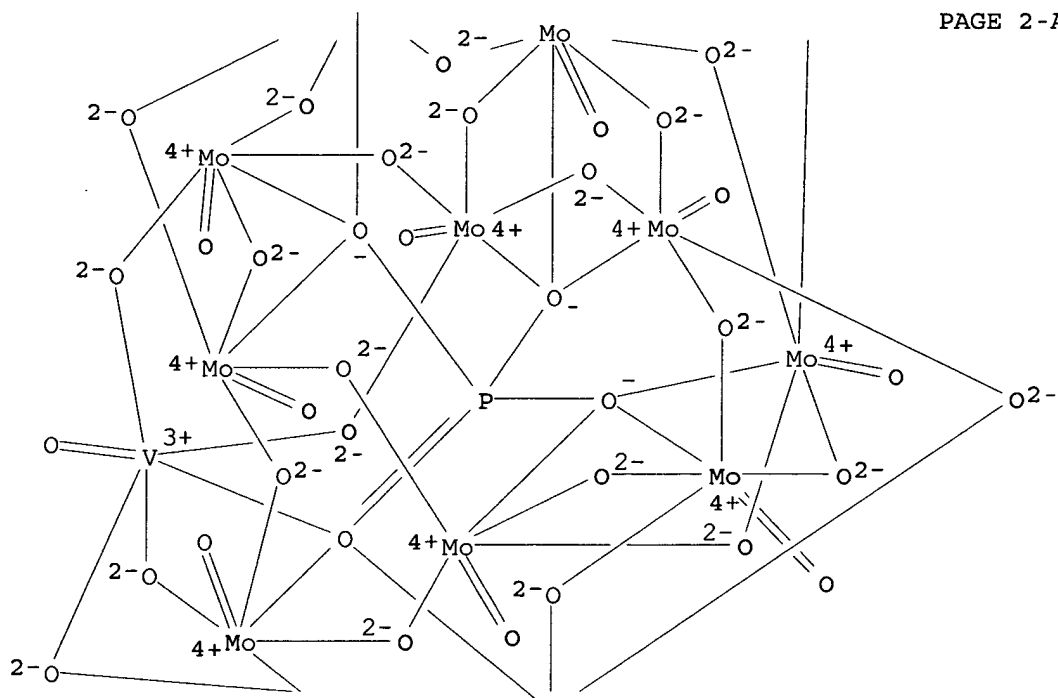
CM 1

CRN 58071-93-5

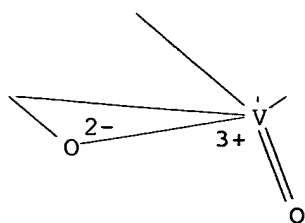
CMF Mo10 O40 P V2

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* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *



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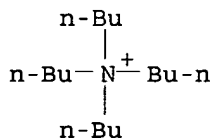


PAGE 3-A

CM 2

CRN 10549-76-5

CMF C16 H36 N



L65 ANSWER 18 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN
 AN 1990:179313 HCAPLUS
 DN 112:179313
 TI Oxidation of cyclohexene with tert-butyl hydroperoxide catalyzed by transition metal oxide clusters
 AU Zhang, Cuiju; Ozawa, Yoshiki; Hayashi, Yoshihito; Isobe, Kiyoshi
 CS Inst. Mol. Sci., Myodaiji, 444, Japan
 SO Journal of Organometallic Chemistry (1989), 373(2), C21-C25
 CODEN: JORCAI; ISSN: 0022-328X
 DT Journal
 LA English
 OS CASREACT 112:179313
 AB Organometallic oxide clusters [(RhCp')₄V₆O₁₉] (Cp' = η⁵-C₅Me₅) and [(RhCp')Cl(MeCN)₂]₂[Mo₆O₁₉] (I) catalyze the oxidation of cyclohexene with tert-Bu hydroperoxide to give allylic oxidation products mainly and epoxycyclohexane selectively, resp. Complex I was prepared and characterized by an x-ray crystal structure determination
 CC 29-11 (Organometallic and Organometalloidal Compounds)
 Section cross-reference(s): 24, 75
 ST oxidn cyclohexene hydroperoxide catalytic; metal oxide cluster oxidn **catalyst**; rhodium molybdate prepn crystal structure; mol structure dirhodium molybdate
 IT Oxidation **catalysts**
 (transition metal oxide clusters, for cyclohexene with tert-Bu hydroperoxide)
 IT 12329-09-8 12354-85-7 12390-22-6 119720-71-7
 RL: CAT (**Catalyst use**); USES (Uses)
 (**catalyst**, for oxidation of cyclohexene with tert-Bu hydroperoxide)
 IT 12329-09-8
 RL: CAT (**Catalyst use**); USES (Uses)
 (**catalyst**, for oxidation of cyclohexene with tert-Bu hydroperoxide)
 RN 12329-09-8 HCAPLUS

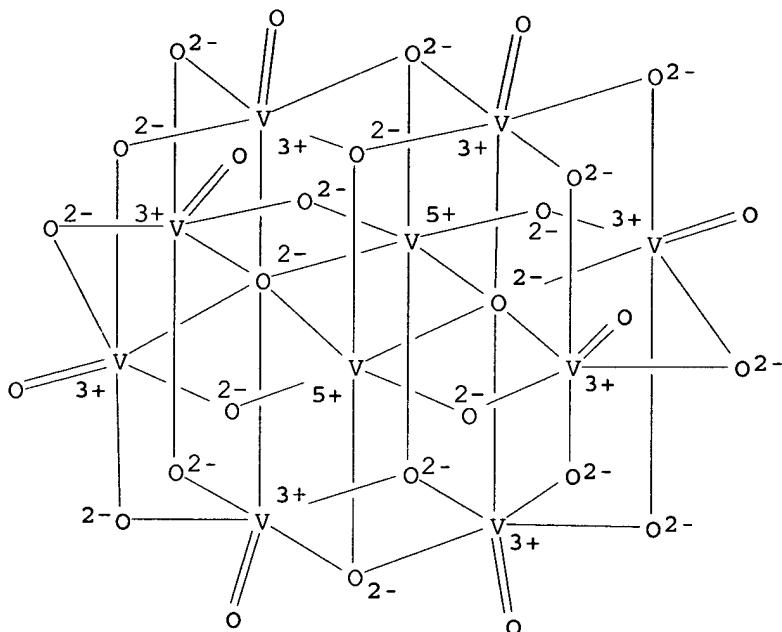
CN 1-Butanaminium, N,N,N-tributyl-, hydrogen tetradeca- μ -oxotetra- μ 3-oxodi- μ 6-oxoocta-oxodecavanadate(6-) (3:3:1) (9CI) (CA INDEX NAME)

CM 1

CRN 12397-12-5

CMF 028 V10

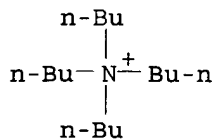
CCI CCS



CM 2

CRN 10549-76-5

CMF C16 H36 N



L65 ANSWER 19 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN
 AN 1989:477319 HCAPLUS
 DN 111:77319
 TI High catalytic activity of vanadium(V) oxo polymers for oxidative cleavage of catechol
 AU Nishida, Yuzo; Kikuchi, Hideki
 CS Fac.Sci., Yamagata Univ., Yamagata, 990, Japan
 SO Zeitschrift fuer Naturforschung, B: Chemical Sciences (1989), 44(2),

245-7

CODEN: ZNBSEN; ISSN: 0932-0776

DT Journal

LA English

AB Some vanadium(V) oxo polymers such as cis-V2W4O194- and V10O286- exhibit high catalytic activities for the oxidative cleavage of 3,5-di-tert-butylcatechol. A chelated species of catechol to two vanadium atoms has been assumed as an active intermediate based on the spectroscopic results.

CC 22-7 (Physical Organic Chemistry)

Section cross-reference(s): 67

ST oxidative ring cleavage dibutylcatechol oxovanadium; vanadium oxo polymer **catalyst**; catechol dibutyl oxidative cleavage catalytic

IT Ring cleavage **catalysts**

(oxidative, vanadium oxo polymers, for di-tert-butylcatechol)

IT 3153-26-2 59858-44-5 101247-98-7 121955-81-5

RL: CAT (Catalyst use); USES (Uses)

(catalysts, for oxidative cleavage of di-tert-butylcatechol)

IT 59858-44-5

RL: CAT (Catalyst use); USES (Uses)

(catalysts, for oxidative cleavage of di-tert-butylcatechol)

RN 59858-44-5 HCAPLUS

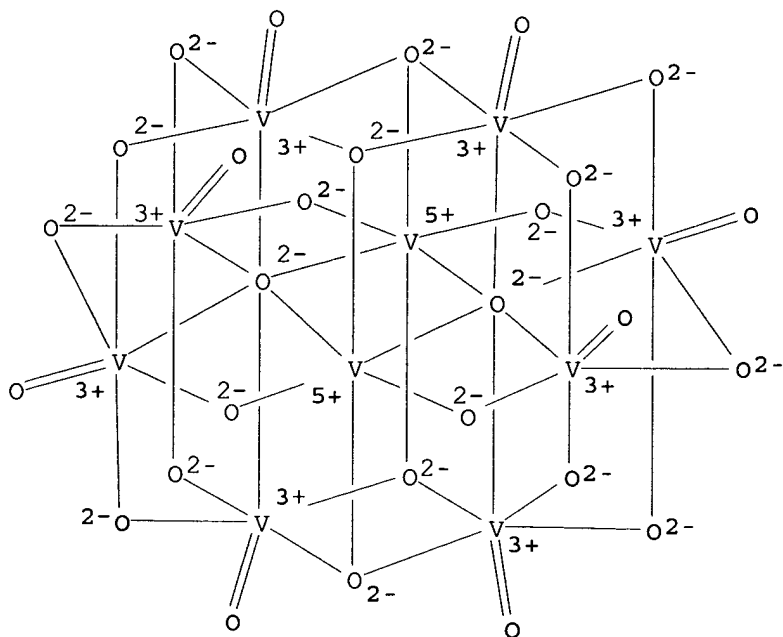
CN 1-Butanaminium, N,N,N-tributyl-, tetradeca- μ -oxo-tetra- μ 3-oxodi- μ 6-oxoocta-oxodecavanadate(6-) (6:1) (9CI) (CA INDEX NAME)

CM 1

CRN 12397-12-5

CMF 028 V10

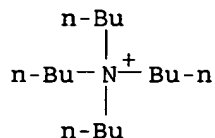
CCI CCS



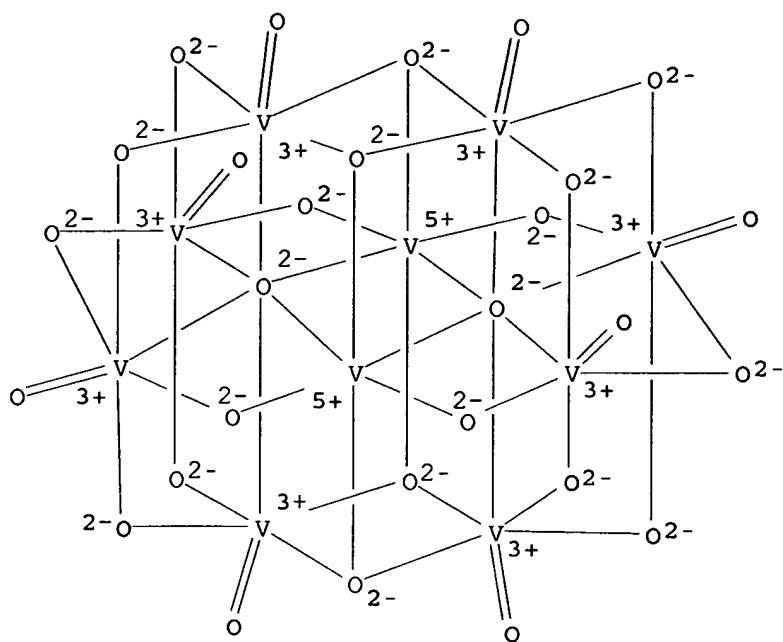
CM 2

CRN 10549-76-5

CMF C16 H36 N



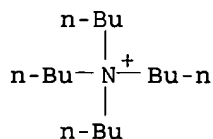
L65 ANSWER 20 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN
 AN 1989:23078 HCAPLUS
 DN 110:23078
 TI Oxidation of catechols catalyzed by heteropolyvanadates
 AU Tatsuno, Y.; Nakamura, C.; Saito, T.
 CS Fac. Eng. Sci., Osaka Univ., Osaka, 560, Japan
 SO Studies in Organic Chemistry (Amsterdam) (1988), 33(Role Oxygen Chem. Biochem.), 321-4
 CODEN: SOCHDQ; ISSN: 0165-3253
 DT Journal
 LA English
 OS CASREACT 110:23078
 AB Tetrabutylammonium salts of heteropolyvanadate and isopolyvanadate efficiently catalyze the oxidation of 3,5-di-tert-butylcatechol (I) and 4,6-di-tert-butylpyrogallol with dioxygen just as VO(acac)₂. Based on the 18O isotopic labeling expts. and the reaction intermediate complex formed from heteropolyvanadate and I under dinitrogen, the reaction mechanism is proposed and compared with that of VO(acac)₂-catalyzed oxidation of I.
 CC 22-7 (Physical Organic Chemistry)
 IT Oxidation **catalysts**
 (heteropolyvanadates, for catechols)
 IT 3153-26-2 **12329-09-8** 80243-45-4 80243-47-6 113443-80-4
 113443-81-5 113443-82-6
 RL: **CAT (Catalyst use)**; USES (Uses)
 (**catalysts**, for oxidation of di-tert-butylcatechol)
 IT **12329-09-8**
 RL: **CAT (Catalyst use)**; USES (Uses)
 (**catalysts**, for oxidation of di-tert-butylcatechol)
 RN 12329-09-8 HCAPLUS
 CN 1-Butanaminium, N,N,N-tributyl-, hydrogen tetradeca-μ-oxotetra-μ₃-oxodi-μ₆-oxoocta-oxodecavanadate(6-) (3:3:1) (9CI) (CA INDEX NAME)
 CM 1
 CRN 12397-12-5
 CMF 028 V10
 CCI CCS



CM 2

CRN 10549-76-5

CMF C16 H36 N



L65 ANSWER 21 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN
 AN 1985:487335 HCAPLUS
 DN 103:87335
 TI Catalytic photochemical dehydrogenation of organic substrates by polyoxometalates
 AU Hill, Craig L.; Bouchard, Donald A.
 CS Dep. Chem., Emory Univ., Atlanta, GA, 30322, USA
 SO Journal of the American Chemical Society (1985), 107(18), 5148-57
 CODEN: JACSAT; ISSN: 0002-7863
 DT Journal
 LA English
 AB The photochem. behavior of polyoxometalates (POM) based on W, Mo, V, Nb and Ta in the presence of H₂O or 1 of a variety of organic substrates (including alcs., amides, ethers, aldehydes, carboxylic acids, nitriles, ketones and ureas) is examined. Irradiation of the charge-transfer bands of POM dissolved in organic media at 25° leads in most cases to oxidation of the organic substrate and reduction of the POM. The POM fall into 3 categories defined by their thermal and photochem. redox chemical in the presence of organic substrates. Type I complexes, exemplified by those of Nb and Ta, do

not photooxidize any organic substrate upon irradiation Type II complexes, exemplified by decavanadate and most heteropoly- and isopolymolybdates, and Type III complexes, exemplified by most heteropoly- and isopolytungstates, do not oxidize a wide range of organic substrates upon irradiation. Reoxidn. of the reduced forms of the Type II complexes, either by reaction with O₂ or by evolution of H₂, is kinetically or thermodynamically unfavorable; analogous reoxidn. of the reduced forms of the Type III complexes is not. Several factors affecting the quantum yields for production of reduced POM are outlined, and the energetic features regarding H₂ evolution are discussed. The IR, UV, and ³¹P, ¹⁸³W and ¹⁷⁰NMR spectral properties of α -H₃PW₁₂O₄₀·6H₂O (I) and other POM remain the same before and after catalytic photochem. dehydrogenation of representative alc., ether or amide substrates. Little if any POM decomposition occurs during the photoredox chemical interactions between organic substrates and POM have profound effects on the electronic structure of the POM. The charge-transfer transitions of I display different sensitivities to medium in the low-energy ($\lambda > 300$ nm) vs. high-energy region of the UV-visible spectral range. The highest quantum yields for photoredox chemical involving organic substrates and I are observed in the low-energy or absorption-tail region. One possible model explaining the wavelength dependence of the absorption and photochem. action spectra is discussed. A general mechanism in agreement with all the exptl. data is proposed for organic substrate oxidation and the effective capture of light energy in these POM-organic substrate systems.

CC 22-7 (Physical Organic Chemistry)

ST photochem dehydrogenation polyoxometalate **catalyst**; NMR polyoxometalate; redox photochem polyoxometalate

IT Alcohols, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(photochem. dehydrogenation of, by polyoxometalates with platinum **catalysts**)

IT Dehydrogenation **catalysts**

(photochem., platinum compds., for organic compds. by polyoxometalates)

IT 7440-06-4, uses and miscellaneous

RL: **CAT (Catalyst use)**; USES (Uses)
(**catalysts**, for dehydrogenation of organic compds. by polyoxometalates)

IT 12026-57-2 12329-10-1 53749-36-3 53749-37-4 68184-32-7

RL: RCT (Reactant); RACT (Reactant or reagent)
(photochem. dehydrogenation by, of organic comds. in presence of platinum **catalysts**)

IT 1343-93-7 12142-54-0 **59858-44-5** 92762-45-3

RL: RCT (Reactant); RACT (Reactant or reagent)
(photochem. dehydrogenation by, of organic compds. in presence of platinum **catalysts**)

IT 12027-38-2

RL: RCT (Reactant); RACT (Reactant or reagent)
(photochem. dehydrogenation by, of organic compds. with platinum **catalysts**)

IT 64-17-5, reactions 64-19-7, reactions 67-64-1, reactions 67-68-5, reactions 68-12-2, reactions 75-12-7, reactions 78-84-2 100-47-0, reactions 100-52-7, reactions 107-12-0 109-99-9, reactions 127-19-5 632-22-4 680-31-9, reactions 872-50-4, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(photochem. dehydrogenation of, by polyoxometalates with platinum **catalysts**)

IT 7732-18-5, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with polyoxometalates in presence of platinum **catalysts**)

IT 59858-44-5

RL: RCT (Reactant); RACT (Reactant or reagent)
(photochem. dehydrogenation by, of organic compds. in presence of platinum catalysts)

RN 59858-44-5 HCAPLUS

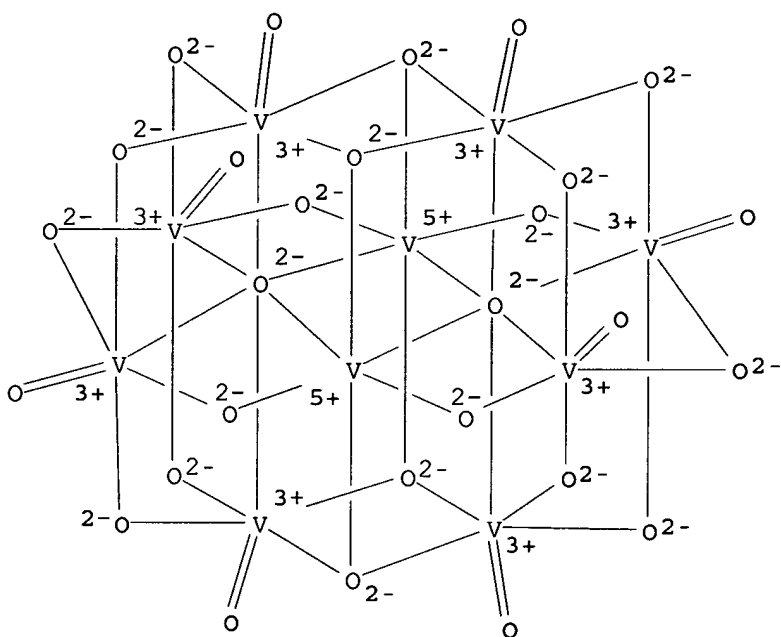
CN 1-Butanaminium, N,N,N-tributyl-, tetradeca- μ -oxo-tetra- μ 3-oxodi-
 μ 6-oxooctaoxodecavanadate(6-) (6:1) (9CI) (CA INDEX NAME)

CM 1

CRN 12397-12-5

CMF 028 V10

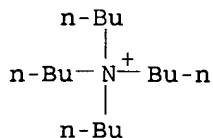
CCI CCS



CM 2

CRN 10549-76-5

CMF C16 H36 N

L65 ANSWER 22 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1978:37175 HCAPLUS
DN 88:37175

TI Use of oxo-metallic derivatives in isomerization. Reactions of unsaturated alcohols

AU Chabardes, P.; Kuntz, E.; Varagnat, J.

CS Cent. Rech. Carrieres, Rhone-Poulenc Ind., Saint-Fons, Fr.

SO Tetrahedron (1977), 33(14), 1775-83
CODEN: TETRAB; ISSN: 0040-4020

DT Journal

LA English

AB Vanadate esters, (NH₄)₆Mo₇O₂₄·4H₂O Mo(C₄H₁₀O₆), NH₄ReO₄, (NH₄)₁₀W₁₂O₄₁·7H₂O and OW(OSiPh₃)₄ catalyzed the isomerization of α-acetylenic and α-ethylenic alcs. to ethylenic carbonyl derivs. and allyl alcs., resp. The vanadate esters are particularly efficient. E.g., dehydrolinalol with vanadyl acetylacetonate at 170° for 35 min gave 41% citral. Reaction mechanisms are proposed.

CC 23-7 (Aliphatic Compounds)

ST vanadate **catalyst** isomerization unsatd alc; alkynol isomerization vanadate **catalyst**; alkenol isomerization vanadate **catalyst**

IT Isomerization **catalysts**
(vanadate esters, for unsatd. alcs.)

IT 1686-23-3 3153-26-2 3473-84-5 5590-56-7 7803-55-6 11120-25-5
12027-67-7 **12329-09-8** 15364-25-7 18822-50-9 19120-62-8
25694-90-0 54465-25-7 55397-36-9 58832-11-4 60647-17-8
65234-94-8 65234-95-9 65234-96-0 65291-17-0
RL: **CAT (Catalyst use)**; USES (Uses)
(**catalyst**, for isomerization of unsatd. alcs.)

IT 11099-11-9
RL: **CAT (Catalyst use)**; USES (Uses)
(**catalyst**, with alumina, for isomerization of dehydrolinalol)

IT 108-93-0, uses and miscellaneous
RL: **CAT (Catalyst use)**; USES (Uses)
(**catalyst**, with ammonium vanadate and analogs. for isomerization of unsatd. alcs.)

IT 75-65-0, uses and miscellaneous
RL: **CAT (Catalyst use)**; USES (Uses)
(**catalyst**, with triethanolamine vanadate for isomerization of unsatd. alcs.)

IT 1344-28-1, uses and miscellaneous
RL: **CAT (Catalyst use)**; USES (Uses)
(**catalyst**, with vanadium oxide, for isomerization of dehydrolinalol)

IT **12329-09-8**
RL: **CAT (Catalyst use)**; USES (Uses)
(**catalyst**, for isomerization of unsatd. alcs.)

RN 12329-09-8 HCAPLUS

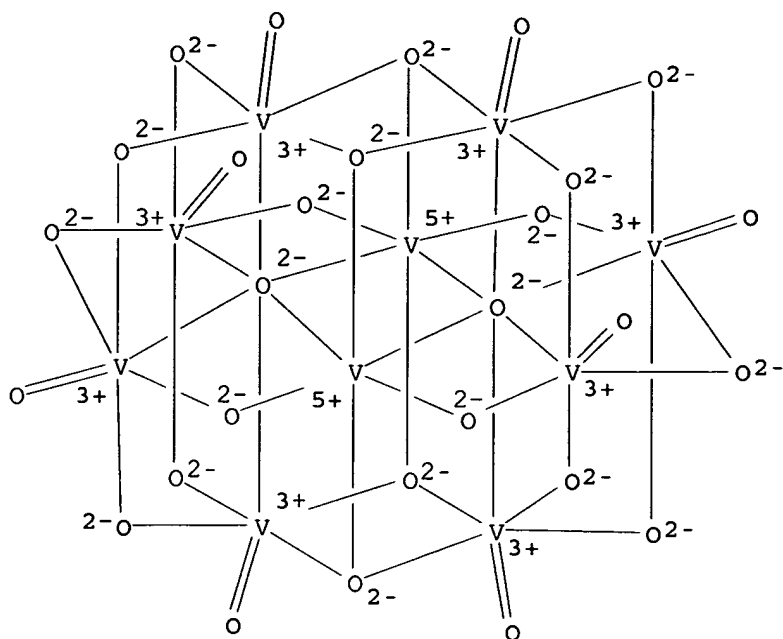
CN 1-Butanaminium, N,N,N-tributyl-, hydrogen tetradeca-μ-oxotetra-μ3-oxodi-μ6-oxooctaoxodecavanadate(6-) (3:3:1) (9CI) (CA INDEX NAME)

CM 1

CRN 12397-12-5

CMF 028 V10

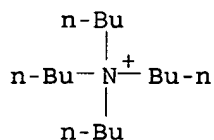
CCI CCS



CM 2

CRN 10549-76-5

CMF C16 H36 N



L65 ANSWER 23 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 1976:135888 HCAPLUS

DN 84:135888

TI Ethylenic carbonyl compounds

IN Chabardes, Pierre; Querou, Yvon

PA Rhone-Poulenc S. A., Fr.

SO U.S., 11 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3920751	A	19751118	US 1971-208917	19711216
PRAI	US 1968-779633	A1	19681127		

AB About 25 catalysts from Nb, V, W, Re, and Mo were prepared and used for the isomerization of 17 β -acetylenic alcs., aldehydes or ketones. For example, NH_4VO_3 was refluxed with cyclohexanol to give cyclohexyl orthovanadate, which (1 g) was used for the isomerization of 20

g dehydrolinalool to give 6.09 g citral.

IC C07C

INCL 260601000R

CC 30-40 (Terpenoids)

Section cross-reference(s): 23

ST isomerization **catalyst** acetylenic alc; vanadium isomerization **catalyst**; molybdenum isomerization **catalyst**; tungsten isomerization **catalyst**; rhenium isomerization **catalyst**; niobium isomerization **catalyst**

IT Isomerization **catalysts**
(from metals of Groups Vb, VIb, and VIIb for acetylenic alcs.)

IT 1314-35-8 3153-26-2 7439-98-7D, Molybdenum, compds. 10026-12-7
11099-11-9 12054-85-2 13598-65-7 15364-25-7 25578-33-0
25578-34-1 25578-35-2 25578-36-3 25578-37-4 32673-55-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(**catalysts** for isomerization of acetylenic alcs.)

IT 1686-22-2 1686-23-3 1686-24-4 12207-63-5 **12329-09-8**
19120-62-8 24910-41-6 25578-29-4 25578-30-7 25611-91-0
25694-90-0 25694-90-0
RL: CAT (Catalyst use); USES (Uses)
(**catalysts**, for isomerization of acetylenic alcs.)

IT **12329-09-8**
RL: CAT (Catalyst use); USES (Uses)
(**catalysts**, for isomerization of acetylenic alcs.)

RN 12329-09-8 HCAPLUS

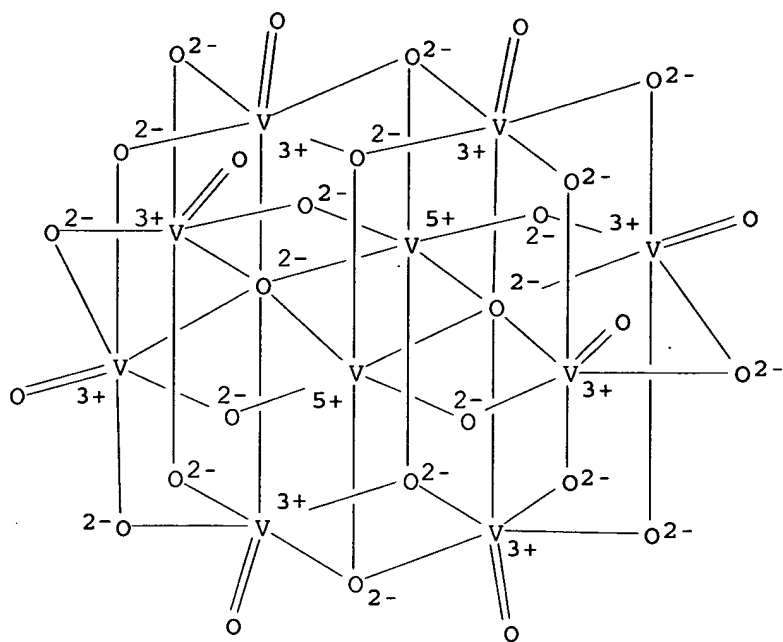
CN 1-Butanaminium, N,N,N-tributyl-, hydrogen tetradeca- μ -oxotetra- μ 3-oxodi- μ 6-oxooctaoxodecavanadate(6-) (3:3:1) (9CI) (CA INDEX NAME)

CM 1

CRN 12397-12-5

CMF 028 V10

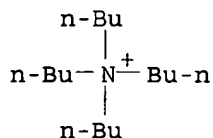
CCI CCS



CM 2

CRN 10549-76-5

CMF C16 H36 N



L65 ANSWER 24 OF 24 HCAPLUS COPYRIGHT 2006 ACS on STN
 AN 1973:136466 HCAPLUS
 DN 78:136466
 TI Catalytic manufacture of α -ethylene carbonyl compounds
 IN Chabardes, Pierre; Querou, Yvon
 PA Societe des usines chimiques de Rhone-Poulenc
 SO Fr. Addn., 12 pp. Addn. to Fr. 1,554,805 (CA 72;43923g).
 CODEN: FAXXA3

DT Patent

LA French

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	FR 96548		19721020	FR 1968-178670	19681217
AB	Acetylenic alcs. HC.tplbond.CC(OH)RR1 (R = Me, R1 = CH2CH2CH:CMe2, CH2CH2CH:CMech2CH2-CH:CMe2, (CH2)5Me, CHMeCH2CH:CMe2, CHetCH2CH:C-Me2; R = Et, R1 = CHMeCH2CH:CMe2; R = Pr, CH2CHMe2, R1 = CH2CH2CH:CMe2) were rearranged catalytically to aldehydes RR1C:CHCHO. Me2C:CHCO(CH2)4Me, and MeCH:-CHCO(CH2)3Me were similarly prepared Suitable catalysts				

were NH₄ metavanadate, (NBu₄)₃H₃V₁₀O₂₈, cyclohexyl orthovanadate, NH₄ molybdate, NH₄ perrhenate, NbCl₅, WO₃, [Me₂CH(CH₂)₃C-MeEtO]₃VO.

IC C07C

CC 30-10 (Terpenoids)

Section cross-reference(s): 23

ST alkynol isomerization; alkenal; vanadate **catalyst** alkynol isomerization; molybdate **catalyst** alkynol isomerization; rhenate **catalyst** alkynol isomerization

IT **Rearrangement catalysts**
(ammonium metavanadate, molybdate and perrhenate for acetylenic carbinols)

IT 1314-35-8 7803-55-6 10026-12-7 12054-85-2 **12329-09-8**
13598-65-7 24910-41-6 25578-37-4
RL: **CAT (Catalyst use)**; **USES (Uses)**
(**catalysts**, for rearrangement of dehydrolinalool)

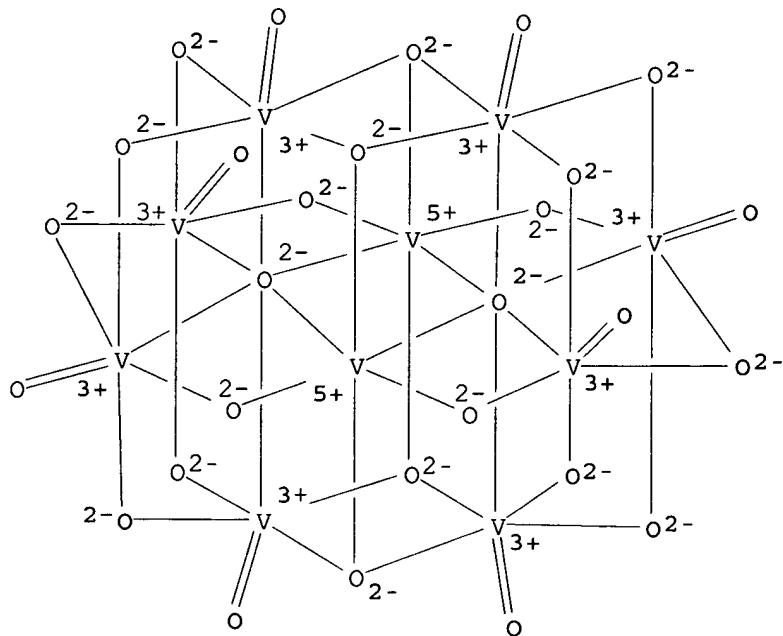
IT **12329-09-8**
RL: **CAT (Catalyst use)**; **USES (Uses)**
(**catalysts**, for rearrangement of dehydrolinalool)

RN 12329-09-8 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, hydrogen tetradeca-μ-oxotetra-μ₃-oxodi-μ₆-oxooctaoxodecavanadate(6-) (3:3:1) (9CI) (CA INDEX NAME)

CM 1

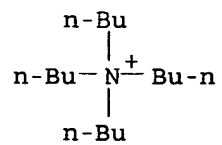
CRN 12397-12-5
CMF 028 V10
CCI CCS



CM 2

CRN 10549-76-5

CMF C16 H36 N



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